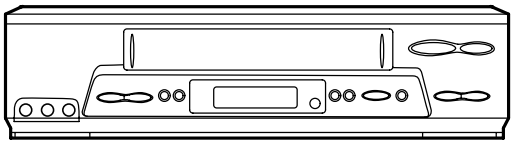
1st Edition

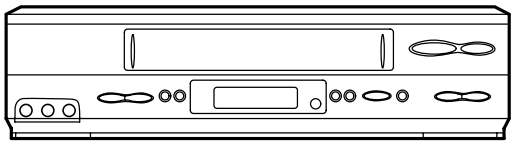
VC-GH61GM/SM,GH611GM
VC-GH60SM,GH600SM,GH601SM
VC-FH310GM/SM

SERVICE MANUAL
SERVICE-ANLEITUNG

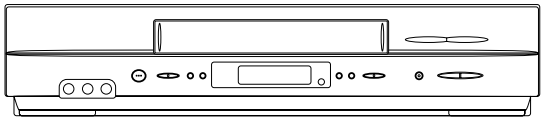
SHARP



VC-GH60SM,GH61GM/SM



VC-GH611GM,GH600SM,GH601SM



VC-FH310GM/SM

VHS VIDEO CASSETTE RECORDER
VHS VIDEO -CASSETTEN RECORDER

VC-GH60SM
VC-GH61GM/SM
VC-GH600SM
VC-GH601SM
VC-GH611GM
VC-FH310GM/SM

MODELS
MODELLE

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

Im Interesse der Benutzer-Sicherheit (gemäß den Sicherheitsvorschriften in eingen Ländern) sollte dieses Gerät wieder auf seinen ursprünglichen Zustand eingestellt und nur die vorgeschriebenen Teile verwendet werden.

CONTENTS

		Page
1.	SPECIFICATIONS	3
2.	DISASSEMBLY AND REASSEMBLY	4
3.	FUNCTION OF MAJOR MECHANICAL PARTS	7
4.	ADJUSTMENT, REPLACEMENT AND ASSEMBLY OF MECHANICAL UNITS	9
5.	ELECTRICAL ADJUSTMENT	28
6.	MECHANISM OPERATION FLOW CHART AND TROUBLESHOOTING GUIDE	35
7.	TROUBLESHOOTING	41
8.	BLOCKDIAGRAMS	109
9.	SCHEMATIC DIAGRAM AND PWB FOIL PATTERN	117
10.	REPLACEMENT PARTS LIST	137
11.	EXPLODED VIEWS	146
12.	PACKING OF THE SET	153

INHALT

		Seite
1.	TECHNISCHE DATEN	3
2.	AUSBAU UND WIEDERZUSAMMENBAU	
3.	FUNKTIONEN DER WICHTIGSTEN MECHANISCHEN TEILE	
4.	EINSTELLUNG, AUSTAUSCH UND MONTAGE DER MECHANISCHEN	
5.	ELEKTRISCHE EINSTELLUNG	
6.	ABLAUFDIAGRAMM ZUR LAUFWERKS-FUNKTION UND FEHLERSUCHTABLLE	
7.	FEHLERSUCHE	
8.	BLOCKSCHALTBILD	109
9.	SCHALTSCHEMA UND PLATINENMUSTER	117
10.	ERSATZTEILLISTE	137
11.	EXPLOSIONSDARSTELLUNGEN	146
12.	VERPACKUNG DES GERÄTES	153

SHARP CORPORATION

PRECAUTIONS IN PART REPLACEMENT

When servicing the unit with power on, be careful to the section marked white all over.
This is the primary power circuit which is live.
When checking the soldering side in the tape travel mode, make sure first that the tape has been loaded and then turn over the PWB with due care to the primary power circuit.
Make readjustment, if needed after replacement of part, with the mechanism and its PWB in position in the main frame.

(1) Start and end sensors: Q701 and Q702

Insert the sensor's projection deep into the upper hole of the holder . Referring to the PWB, fix the sensors tight enough.

(2) Photocoupler: IC901 and IC902

Refer to the symbol on the PWB and the anode marking of the part.

(3) Cam switches A and B : S704

Adjust the notch of the part to the white marker of the symbol on the PWB. Do not allow any looseness.

(4) Take-up and supply sensors : D706 and D707

Be careful not to confuse the setting direction of the parts in reference to the symbols on the PWB. Do not allow any looseness.

VORSICHTSMASSNAHMEN BEIM AUSWECHSELN VON TEILEN

Bei Wartungsarbeiten am Gerät mit eingeschalteter Stromversorgung ist besonders auf den weiß markierten Abschnitt zu achten.
Es handelt sich um den Primärstromkreis, der spannungsführend ist.
Beim Überprüfen der Lötseite im Bandlaufmodus muß zunächst sichergestellt werden, daß das Band eingezogen wurde. Dann die Platine unter entsprechender Beachtung des Primärstromkreises umdrehen.
Eine ggf. erforderliche Neueinstellung nach dem Auswechseln von Teilen druchführen während sich Bandlaufwerk und Platine im Hauptrahmen befinden.

(1) Start- und Endsensoren: Q701 und Q702

Das hervorstehende Teil des Sensors tief in die obere Öffnung des Halter stecken. Die Sensoren in Bezug auf die Platine ausreichend befestigen.

(2) Fotokoppler: IC901 und IC902

Siehe das Symbol auf der Platine und die Anodenkennzeichnung des Teils.

(3) Nockenschalter A und B: S704

Die Kerbe des Teils mit der weißen Markierung des Symbols auf der Platine ausrichten. Die Teile müssen fest sitzen.

(4) Aufwickel- und Abwickelsensoren : D706 und D707

Darauf achten, daß die Ausrichtung der Teile in Bezug auf die Symbole auf der Platine nicht vertauscht wird.

1. SPECIFICATIONS

Format:	VHS PAL standard
Video recording system:	Two rotary heads, helical scan system
Video signal:	PAL/MESECAM colour and B/G signals, 625 lines
Recording/playing time:	240 min max. with SHARP E-240 tape (PAL SP) 480 min max. with SHARP E-240 Tape (PAL LP) 720 min max. with SHARP E-240 Tape (PAL EP)
Tape width:	12.7mm
Tape speed:	23.39 mm/s (PAL SP) 11.70 mm/s (PAL LP) 7.8 mm/s (PAL EP)
Antenna:	75 ohm unbalanced
Receiving channel:	VHF Channel E2-E12, S1-S41 UHF Channel E21-E69
RF converter output signal:	UHF Channel E21-E69 (preset to CH E36)
Power requirement:	AC230V, 50Hz
Power consumption:	Approx. 14W(VC-GH61GM/SM,GH611GM/SM) Approx. 14.1W(VC-FH310GM/SM) 3W max. (at Low power mode)
Operating temperature:	5°C to 40°C
Storage temperature:	–20°C to 55°C
Weight:	Approx. 2.5 kg(VC-GH61GM/SM,GH611GM/SM) Approx. 2.9 kg(VC-FH310GM/SM)
Dimensions:	360 mm (W) x 229.0 mm (D) x 92.0 mm (H) (VC-GH61GM/SM) 360 mm (W) x 231.4 mm (D) x 92.5 mm (H) (VC-GH611GM) 430 mm (W) x 227 mm (D) x 92 mm (H) (VC-FH310GM/SM)
VIDEO	
Input:	1.0 Vp-p, 75 ohm
Output:	1.0 Vp-p, 75 ohm
Horizontal resolution:	250 lines
AUDIO	0 dBs = 0.775 Vrms
Input:	Line1; –3.8 dBs, 10k ohm Line2; –3.8dBs, 10k ohm Line3;-3.8dBs, 47k ohm
Output:	Line1; –3.8 dBs, 1k ohm Line2; –3.8dBs, 1k ohm
Hi-Fi Dynamic Range:	90 dB TYP
Hi-Fi Wow and Flutter:	0.005%
Hi-Fi Frequency Responce:	20 Hz ~ 20 k Hz
Hi-Fi Distortion:	0.5% max.
Hi-Fi Crosstalk(at 1kHz):	55dB min.
Accessories included:	75 ohm coaxial cable Operation manual Infrared remote control Battery (2pcs.)

As part of our policy of continuous improvement, we reserve the right to alter design and specifications without notice.

Note:
The antenna must correspond to the new standard DIN 45325 (IEC 169 - 2) for combined UHF/VHF antenna with 75 ohm connector.

1. TECHNISCHE DATEN

Format:	VHS PAL Norm
Video-Aufzeichnungssystem:	Schrägspuraufzeichnung mit zwei rotierenden Köpfen
Videosignale:	PAL/MESECAM-Farb-und B/G-weißsignale, 625 Zeilen
Aufzeichnungs-/:	240 Minuten Max., mit SHARP E-240-Band (PAL-SP) 480 Minuten Max., mit SHARP E-240-Band (PAL-LP) 720 Minuten Max., mit SHARP E-240-Band (PAL-EP)
Wiedergabezeit	
Bandbreite:	12,7 mm
Bandgeschwinddigkeit:	23,39 mm/s (PAL-SP) 11,70 mm/s (PAL-LP) 7,8 mm/s (PAL-EP)
Antenne:	75 Ohm unsymmetrisch
Empfangskanäle:	VHF-Kanäle E2-E12, S1-S41 UHF-Kanäle E21-E69
Ausgangssignal HF-Wandler:	UHF-Kanäle E21-E69 (voreingestellt auf Kanäl E36)
Stromversorgang:	Wechselstrom 230V, 50Hz
Leistungsaufnahme:	Ca. 14W(VC-GH61GM/SM,GH611GM/SM) Ca. 14.1W(VC-FH310GM/SM) Max. 3 W (beim kleinleistungs-Modus)
Betriebstemperatur:	5° bis 40°C
Legerungs temperatur:	–20° bis 55°C
Gewicht:	Ca. 2,5 kg(VC-GH61GM/SM,GH611GM/SM) Ca. 2,9 kg(VC-FH310GM/SM)
Abmessungen:	360mm (B) x 229,0 mm (T) x 92,0 mm (H) (VC-GH61GM/SM) 360mm (B) x 231,4 mm (T) x 92,5 mm (H) (VC-GH611GM) 430mm (B) x 227 mm (T) x 92 mm (H) (VC-FH310GM/SM)
VIDEO	
Eingang:	1,0 Vs-s, 75 Ohm
Ausgang:	1,0 Vs-s, 75 Ohm
Horizontale Auflösung:	250 Linie
AUDIO	0 dB = 0,775 Veff
Eingang:	Direkteingang 1 : –3,8 dBs/10k Ohm Direkteingang2 : –3.8 dBs/10k Ohm Direkteingang2 : –3.8 dBs/47k Ohm
Ausgang:	Direktausgang 1 : –3,8 dBs/1k Ohm Direktausgang 2 : –3.8 dBs/1k Ohm
Hi-Fi Dynamikbereich:	TYP 90dB
Hi-Fi-Tonhöhenschwankungen:	0,005%
Hi-Fi-Frequenzwiedergabe:	20 Hz - 20 k Hz
Hi-Fi-Verzerrung:	max. 0,5%
Hi-Fi-Übersprechen:	min. 55dB
Mitgeliefertes Zubehör:	75 Ohm-Koaxialkabel Bedienungsanleitung Infrarot-Fernbedienung Batterie (2 Stücks)

*Im Sinne der ständigen Verbesserung behalten wir uns das Recht vor, die äußere Aufmachung und technischen Daten ohne Vorankündigung zu ändern.

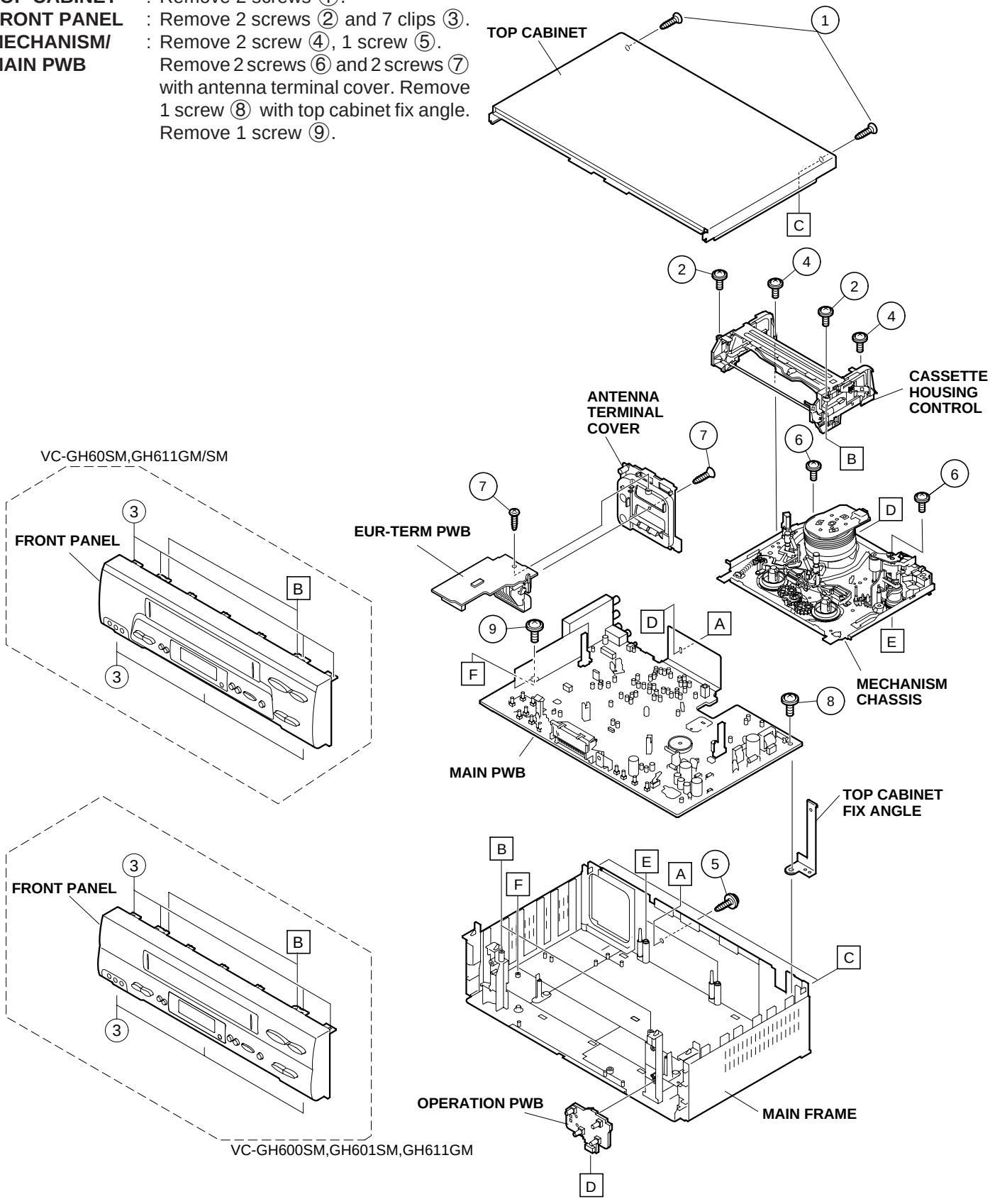
Hinweis:
Die Antenne muß der neuen DIN-Norm 45325 (IEC169-2) für VHF-UHF-Kombiantennen mit 75 Ohm-Anschluß entsprechen.

2. DISASSEMBLY AND REASSEMBLY

2-1 DISASSEMBLY OF MAJOR BLOCKS

(except VC-FH3101GM/SM)

TOP CABINET : Remove 2 screws ①.
FRONT PANEL : Remove 2 screws ② and 7 clips ③.
MECHANISM/ MAIN PWB : Remove 2 screw ④, 1 screw ⑤. Remove 2 screws ⑥ and 2 screws ⑦ with antenna terminal cover. Remove 1 screw ⑧ with top cabinet fix angle. Remove 1 screw ⑨.



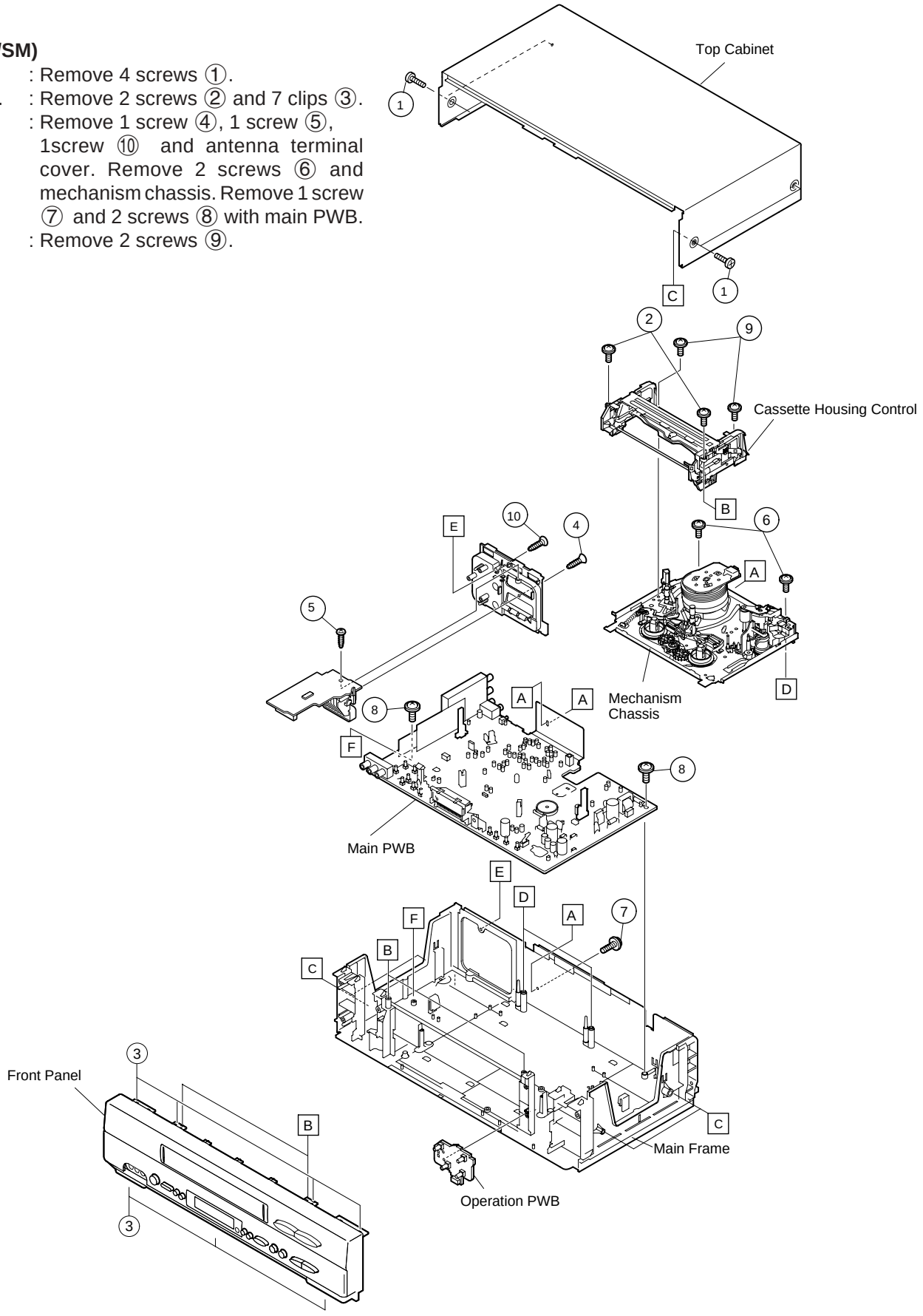
(VC-FH310GM/SM)

TOP CABINET : Remove 4 screws ①.

FRONT PANEL : Remove 2 screws ② and 7 clips ③.

MECHANISM/ MAIN PWB : Remove 1 screw ④, 1 screw ⑤, 1screw ⑩ and antenna terminal cover. Remove 2 screws ⑥ and mechanism chassis. Remove 1 screw ⑦ and 2 screws ⑧ with main PWB.

CASSETTE HOUSING CONTROL : Remove 2 screws ⑨.



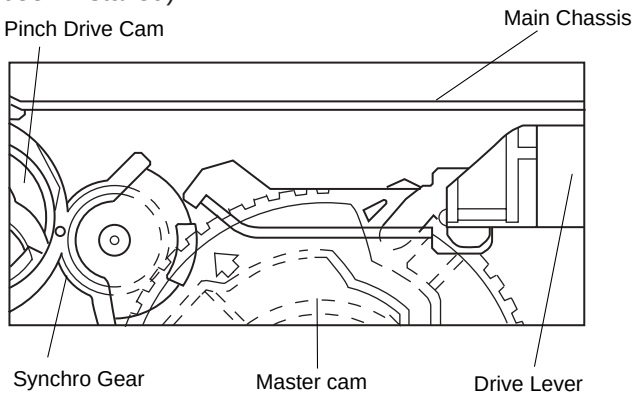
2-2 CARES WHEN REASSEMBLING

INSTALLING THE CASSETTE HOUSING

When the cassette housing is installed on the mechanism, the initial setting is essential condition.
There are two initial setting methods, namely electrical and mechanical.

1. Electrical initial setting

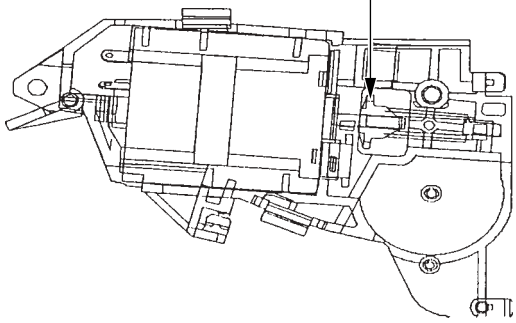
So as to perform initial setting of mechanism execute the Step 1 of Installation of cassette housing. After ascertaining the return to the initial setting position install the cassette housing. (Conditions: When mechanism and PWB have been installed)



2. Mechanical initial setting

- Rotate the worm gear by pushing the flange manually until return to initial position.

Rotate the flange of worm gear by using thin stick.
CW • • • Loading direction
CCW • • • Ejection direction
Note:
Be careful not to damage the gear of worm gear and worm wheel gear. It miight cause a strange sound.



- When apply power supply to rotate the loading motor, please remove/unsolder at least one terminal wire.
- If voltage applied to loading motor without diconnecting the terminal wire, there is a possibility the capstan motor IC will damage.
- The maximum applied voltage is 9V. If more than 9V, there is apossibility the mechanism will damage.
- After ascertaining the return to the initial set position install the cassette housing in the specified position. (This method is applied only for the mechanism.)

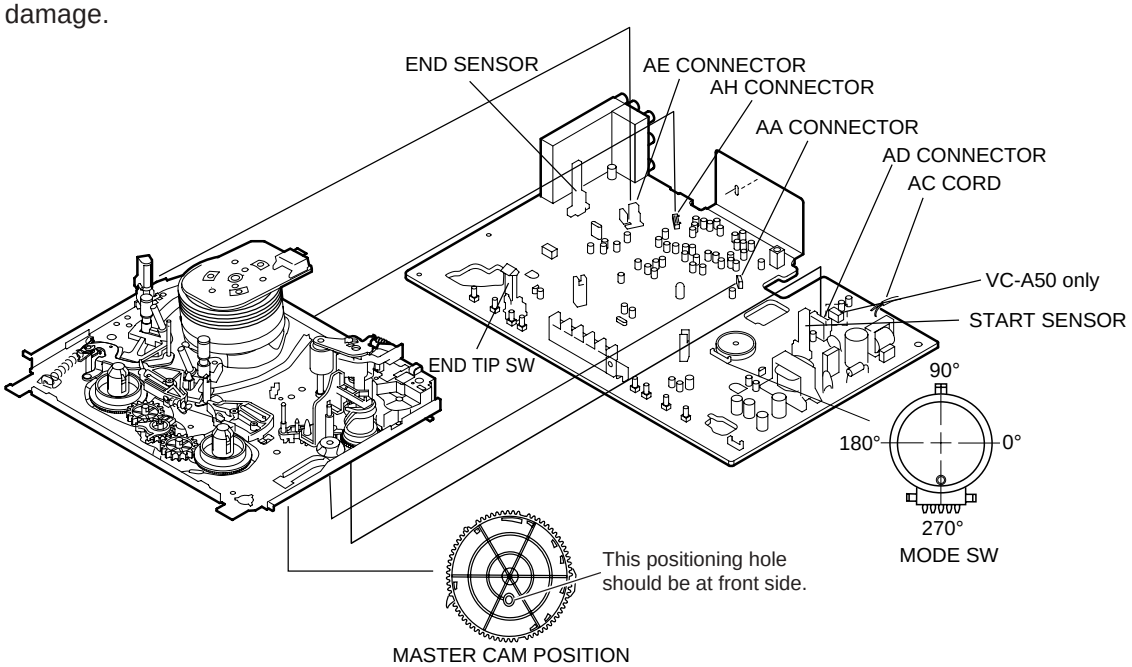
INSTALLING THE MECHANISM ON PWB

Lower vertically the mechanism, paying attention to the mechanism edge mode SW position, (Set the mode SW position to 270° and make sure the master cam position hole also in 270° position) and install the mechanism with due care so that the parts are not damaged.

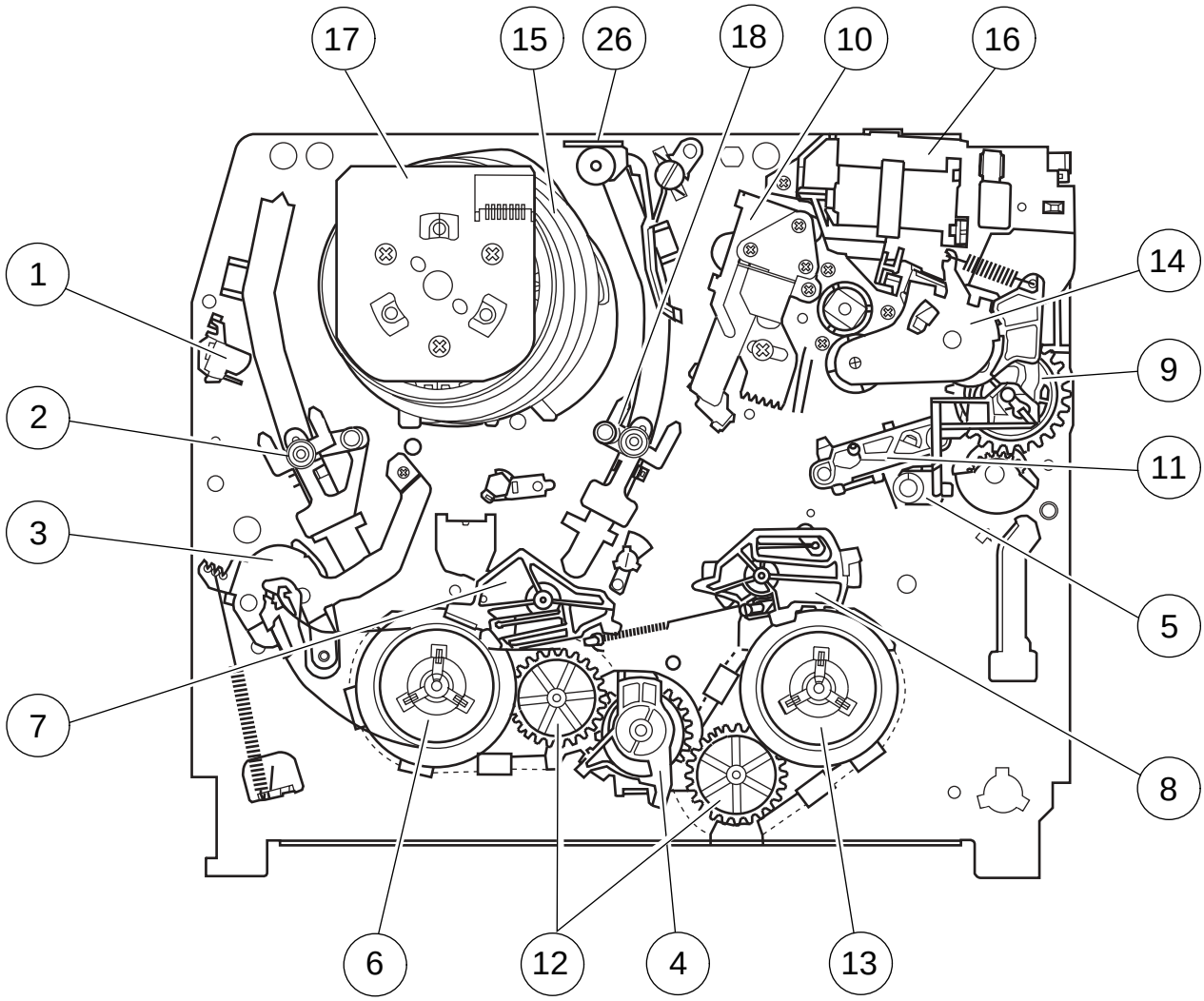
* Please make sure to insert correctly.
If not, strange moving will occur and will couse mechanism damage.

PARTS WHICH NEED PARTICULAR CARE

When installing the mechanism chassis on the PWB unit, take care so as to prevent deformation due to contact of mechanism chassis with REC TIP SW.

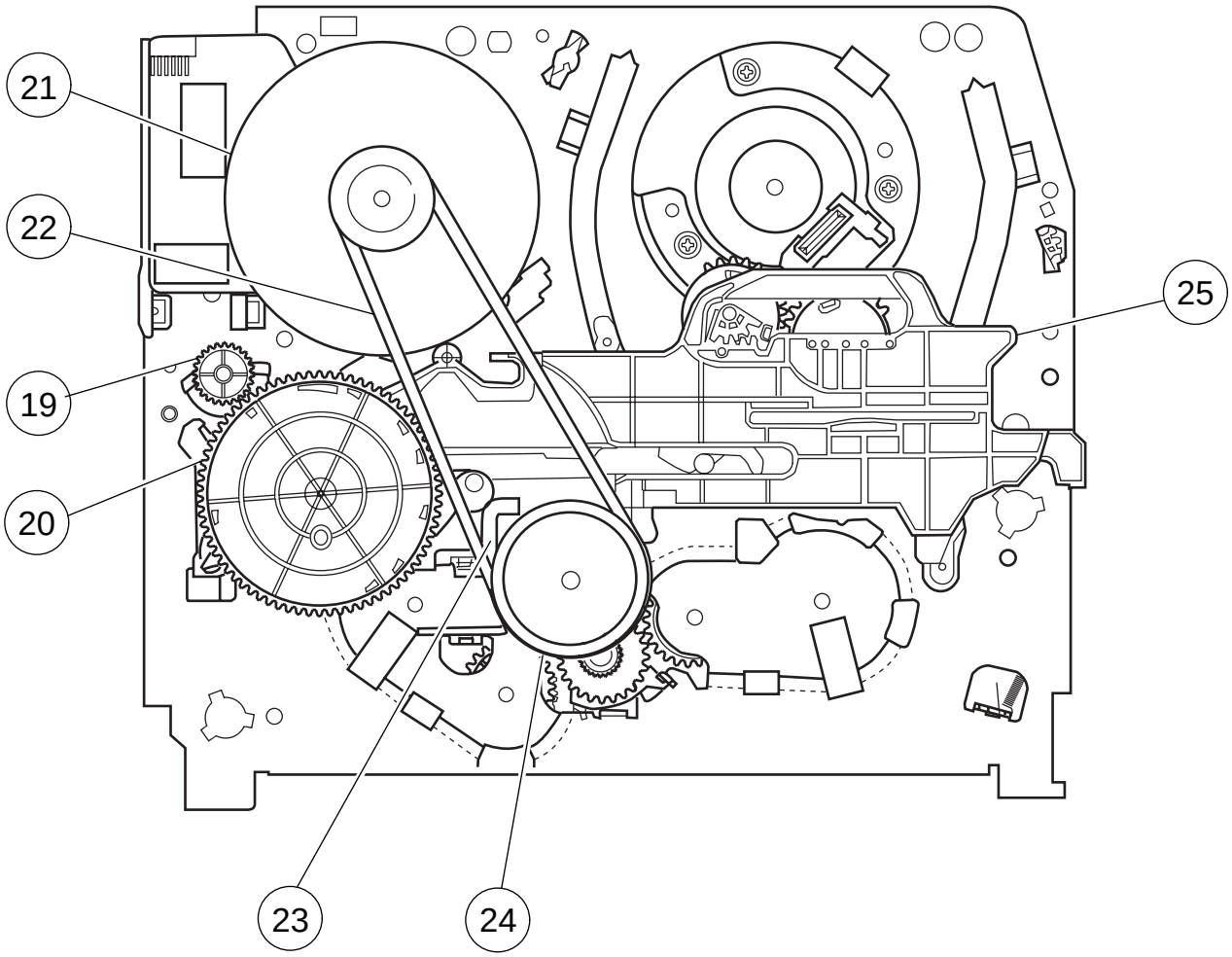


3. FUNCTION OF MAJOR MECHANICAL PARTS (TOP VIEW)



No.	Function	No.	Function
1	Full erase head	11	Reverse guide lever ass' y
2	Supply pole base ass' y	12	Reel relay gear
3	Tension arm	13	Take-up reel disk
4	Idler wheel ass' y	14	Pinch roller lever ass' y
5	Open guide	15	Drum ass'y
6	Supply reel disk	16	Loading motor block
7	Supply main brake	17	Drum driver motor
8	Take-up main brake	18	Take-up pole base ass'y
9	Pinch drive cam	26	Auto head cleaner Ass'y
10	A/C head ass' y		

FUNCTION OF MAJOR MECHANICAL PARTS (BOTTOM VIEW)



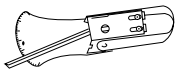
No.	Function	No.	Function
19	Syncro Gear	23	Clutch lever
20	Master cam	24	Limiter pulley ass' y
21	Capstan D.D. motor	25	Shifter
22	Reel belt		

4. ADJUSTMENT, REPLACEMENT AND ASSEMBLY OF MECHANICAL UNITS

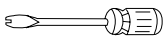
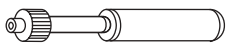
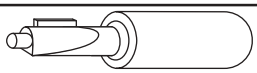
The explanation given below relates to the on-site general service (field service) but it does not relates to the adjustment and replacement which need high-grade equipment, jigs and skill. For example, the drum assembling, replacement and adjustment service must be performed by the person who have finished the technical courses.

4-1 MECHANISM CONFIRMATION ADJUSTMENT JIG

So as to perform completely the mechanism adjustment prepare the following special jigs. So as to maintain the initial performance of the machine the maintenance and check are necessary. Utmost care must be taken so that the tape is not damaged. If adjustment needs any jig, be sure to use the required jig.

No.	Jig Item	Part No.	Code	Configuration	Remarks
1.	Torque Cassette Meter	JiGVHT-063	CZ		This cassette torque meter is used for checking and adjusting the torque of take-up for measuring tape back tension.
2.	Torque Gauge	JiGTG0090	CM		These Jigs are used for checking and adjusting the torque of take-up and supply reel disks.
		JiGTG1200	CN		
3.	Torque Gauge Head	JiGTH0006	AW		
4.	Torque Driver	JiGTD1200	CB		When fixing any part to the threaded hole using resin with screw, use the jig. (Specified torque 5 kg)
5.	Master Plane Jig and Reel Disk Height Adjusting Jig	JiGRH0002	BR		These Jigs are used for checking and adjusting the reel disk height.
		JiGMP0001	BY		
6.	Tension Gauge	JiGSG2000	BS		There are two gauges used for the tension measurements, 300 g and 2.0 kg.
		JiGSG0300	BF		
7.	Pinch pressing force measuring jig	JiGADP003	BK		This Jig is used with the tension gauge. Rotary transformer clearance adjusting jig.
8.	Alignment Tape	VROCPSV	CK		These tapes are especially used for electrical fine adjustment.

Video	Audio	HiFi Audio	Track
625 Monoscope	7k	—	49µm
PAL Colour Bar	1k	—	49µm

9.	Guide roller height adjustment driver	JiGDRiVERH-4	AP		This screwdriver is used for adjusting the guide roller height.
10.	X value adjustment gear driver	JiGDRiVER-6	BM		For X value adjustment
11.	Tension Pole Adjustment Driver	JiGHMEC-M005			This Jig is used for adjustment of tension pole.

4-2 MAINTENANCE CHECK ITEMS AND EXECUTION TIME

Perform the maintenance with the regular intervals as follows so as to maintain the quality of machine.

Parts \ Maintained	500 hrs.	1000 hrs.	1500 hrs.	2000 hrs.	Possible symptom encountered	Remarks
Guide roller ass' y	□	□	□	□	Lateral noises Head occasionally blocked	Abnormal rotation or significant vibration requires replacement.
Sup guide shaft	□	□	□	□		Clean tape contact part with the specified cleaning liquid.
Reverse guide	□	□	□	□		
Slant pole on pole base	□	□	□	□		
Full erase head	□	□	□	○	Colour and beating	Clean tape contact area with the specified cleaning liquid.
A/C head	□	□	□	○	Small sound or sound distortion	
Upper and lower drum ass' y	□	○□	○□	○□	Poor S/N ratio, no colour Poor flatness of the envelope with alignment tape	
Capstan D.D. motor	□	□	□	□	No tape running, uneven colour	
Pinch roller	□	□	□	□	No tape running, tape slack	Clean rubber and rubber contact area with the specified cleaning liquid.
Reel belt		□		○	No tape running, tape slack, no fast forward/ rewind motion	
Tension band ass' y				○	Screen swaying	
Loading motor				○	Cassette not loaded or unloaded	
Idler ass' y				○	No tape running, tape slack	
Limiter pulley		□△		□○		
Supply/take-up main brake levers				○	Tape slack	

NOTE ○ : Part replacement. □ : Cleaning △ : Apply grease
<Specified> Cleaning liquid Industrial ethyl alcohol

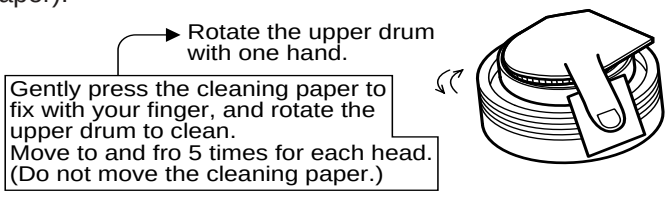
* This mechanism does not need electric adjustment with variable resistor. Check parts. If any deviation is found, clean or replace parts.

Video head cleaning procedure

1. Apply one drop of cleaning liquid to the cleaning paper with the baby oiler.
2. Gently press the cleaning paper against the video head to fix your finger, and move the upper drum so that each head is passed to and fro 5 times (do not move the cleaning paper).
3. Wipe with the dry cleaning paper.

Notes :

- Use the commercially available ethanol of Class 1 as cleaning liquid.
- Since the video head may be damaged, do not move up and down the cleaning paper.
- Whenever the video head is cleaned, replace the cleaning paper.
- Do not apply this procedure for the parts other than the video head.


Rotate the upper drum with one hand.
Gently press the cleaning paper to fix with your finger, and rotate the upper drum to clean.
Move to and fro 5 times for each head.
(Do not move the cleaning paper.)

Parts Code	Description	Code
ZPAPRA56-001E	Cleaning Paper	AW
ZOiLR-02-24TE	Babe Oiler (Spoit)	AH

4-3 REMOVING AND INSTALLING THE CASSETTE HOUSING

• Removal

1. In the cassette removing mode, remove the cassette.
2. Unplug the power cord.
3. Remove in the following numerical order.
   a) Remove two screws ①.
   b) Pull and circle the drive lever and pull up the cassette housing control.

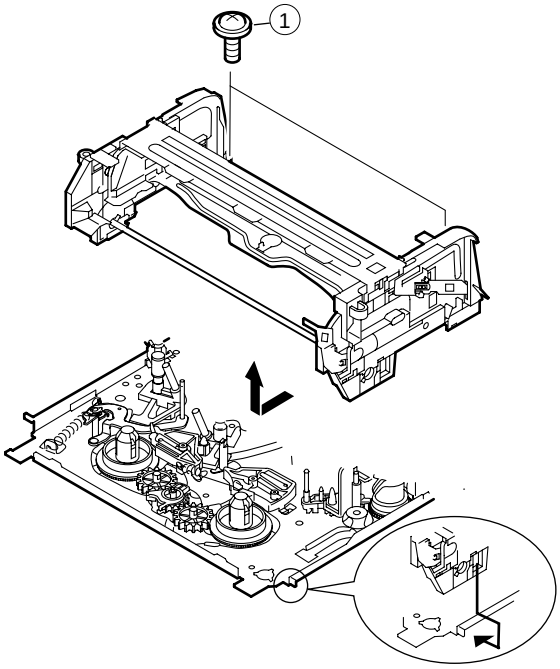


Figure 4-1.

• Reassembly

1. Before installing the cassette housing control, short-circuit between TP803 and TP802 provided at main PWB, press the eject button. The master cam turns and stop in eject position. Fit the drive lever to master cam through main chassis, push down and slide the drive lever towards to master cam.
   *Eject position: Pinch Drive Cam positioning hole parallel to center of Synchro Gear (Synchro gear marking line). Synchro Gear positioning mark parallel to center of master cam.

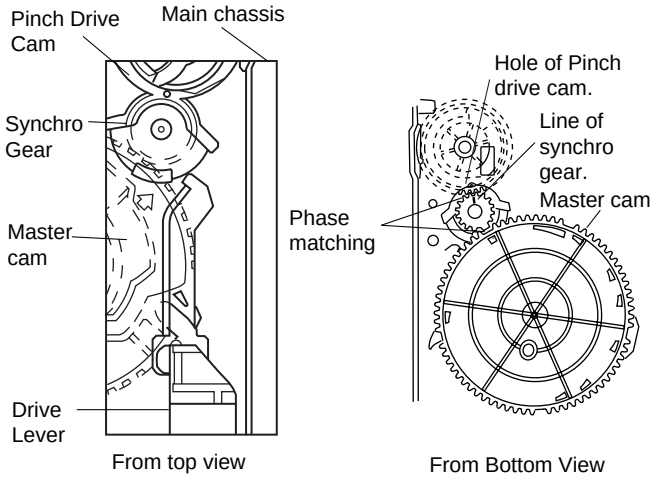


Figure 4-2.

2. Install in the reverse order of removal.

Notes

1. In the case when you use the magnet screw driver, never approach the magnet driver to the A/C head, FE head, and drum.
2. When installing or removing, take care so that the cassette housing control and tool do not contact the guide pin or drum.
3. After installing the cassette housing control once perform cassette loading operation.

4-4 TO RUN A TAPE WITHOUT THE CASSETTE HOUSING CONTROL ASSEMBLY

1. Remove the full-surface panel.
2. Short-circuit between TP803 and TP802.
3. Plug in the power cord.
4. Turn off the power switch.
   (The pole bases move into U.L.position.)
5. Open the lid of a cassette tape by hand.
6. Hold the lid with two pieces of vinyl tape.
7. Set the cassette tape in the mechanism chassis.
8. Stabilize the cassette tape with a weight (500g) to prevent floating.

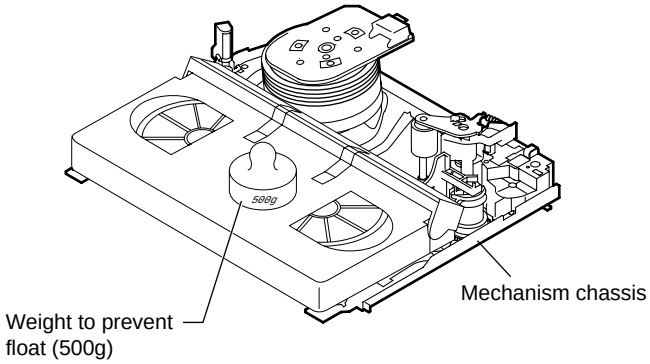


Figure 4-3.

9. Turn on the power switch.
10. Perform running test.

Note:
The weight should not be more than 500g.

To take out the cassette tape.

1. Turn off the power switch.
2. Take out the cassette tape.

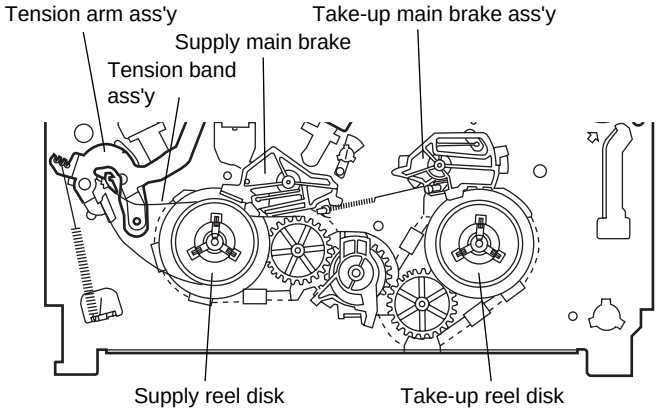
4-5 REEL DISK REPLACEMENT AND HEIGHT CHECK

- **Remov al**

1. Remove the cassette housing control assembly.
2. Remove the Supply/Take-up main brake ass'y.
3. Remove tension band from the tension arm ass'y.
4. Remove the reel disk.

Note:

Take care so that the tension band ass'y and main brake ass'y are not deformed.



- **Reassembly (Supply reel disk)**

1. Clean the reel disk shaft and apply grease (SC-141) to it.
2. Match the phases of reel disk and reel relay gear, and set the new reel disk.
3. After checking the reel disk height, wind the tension band ass'y around the reel disk, and hook to tension arm ass'y.
4. Assemble the Supply main brake ass'y.

Notes:

1. When installing the reel disk, take due care so that the tension band ass'y is not deformed and grease does no adhere.
2. Do not damage the Supply main brake ass'y. Be careful so that grease does not adhere to the brake surface.

- **Reassembly (Take-up reel disk)**

1. Clean the reel disk shaft and apply grease (SC-141) to it.
2. Align the phase of the reel disk to that of the reel relay gear and to install a new take-up reel disk onto the shaft.
3. Check the reel disk height and reassemble the take-up main brake ass'y.

Note:

1. Take care so that the Take-up main brake ass'y is not damaged. Take care so that grease does not adhere the brake surface.
2. After reassembly, check the video search rewind back tension (see **4-10**), and check the brake torque (see **4-14**).

- **Height checking and adj ustment**

Note:

1. Set the master plane with due care so that it does not contact the drum.
2. When putting the master plane, shift the reverse guide a little in the loading direction. Care must be taken since excessive shift results in damage.

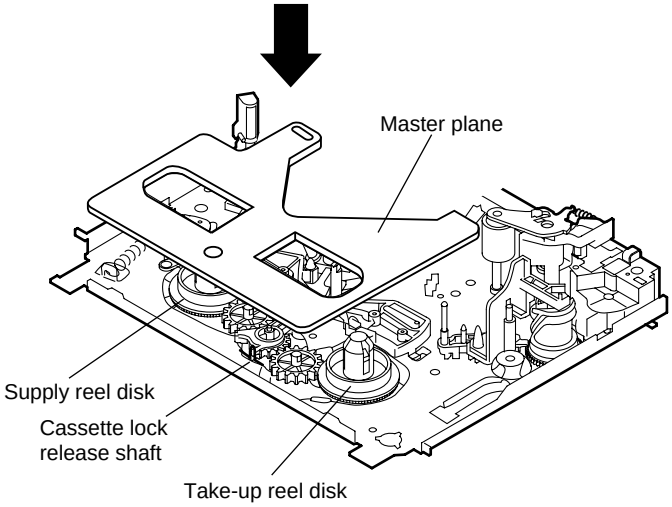


Figure 4-4.

Note:

- Check that the reel disk is lower than part A but higher than part B. If the height is not correct, readjust the reel disk height by changing the poly-slider washer under the reel disk.

Note:
Whenever replacing the reel disk, perform the height checking and adjustment.

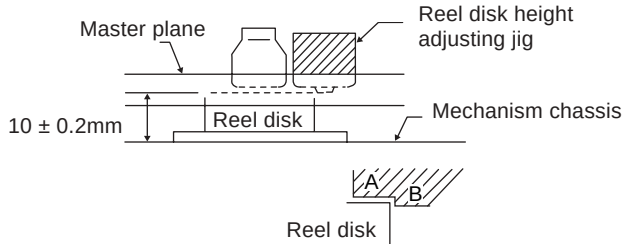


Figure 4-5.

4-6 CHECKING AND ADJUSTMENT OF TAKE-UP TORQUE IN FAST FORWARD MODE

- **Remov e the cassette housing control assembly.**

- **After short-circuiting between TP8 03 and TP8 02 prov ided at main PWB, plug in the power cord.**

- **Setting**

1. Set a torque gauge to zero on the scale. Place it on the take-up reel disk.
2. Press the FF button.
3. To calculate the remaining capacity of the play back mode, slowly rotate the supply reel disk, and then shift it into the forward mode.

- **Checking**

1. Turn the torque gauge slowly (one rotation every 2 to 3 seconds) by hand in the CW direction.
2. Make sure that the indication of torque gauge is not less than 30mN·m (306gf·cm).

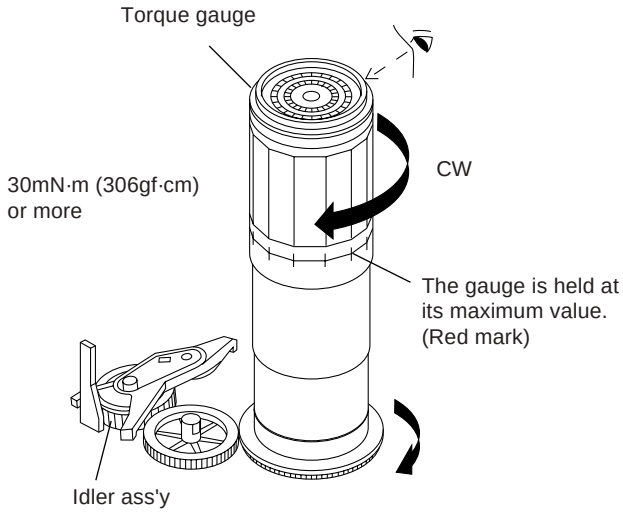


Figure 4-6.

- **Adj ustment**

1. If the FF winding-up torque is less than the specified value, clean the capstan D.D. pulley, reel belt, and limiter pulley with cleaning liquid, and check again.
2. If the torque is less than the set value, replace the reel belt.

Notes:

1. Hold the torque gauge by hand so that it is not moved.
2. Do not keep the reel disk in lock state. Do not allow long-time measurement.

4-7 CHECKING AND ADJUSTMENT OF TAKE-UP TORQUE IN REWIND MODE

- **Remov e the cassette housing control assembly.**

- **After short-circuiting between TP8 03 and TP8 02 prov ided at main PWB, plug in the power cord.**

- **Setting**

1. Set a torque gauge to zero on the scale. Place it on the supply reel disk.
2. Press the rewind button.
3. To calculate the remaining capacity, slowly rotate the take-up reel disk, and then shift it into the rewind mode.

- **Checking**

1. Turn the torque gauge slowly (one rotation every 2 to 3 seconds) by hand in the CCW direction.
2. Make sure that the indication of torque gauge is not less than 30mN·m (306gf·cm).

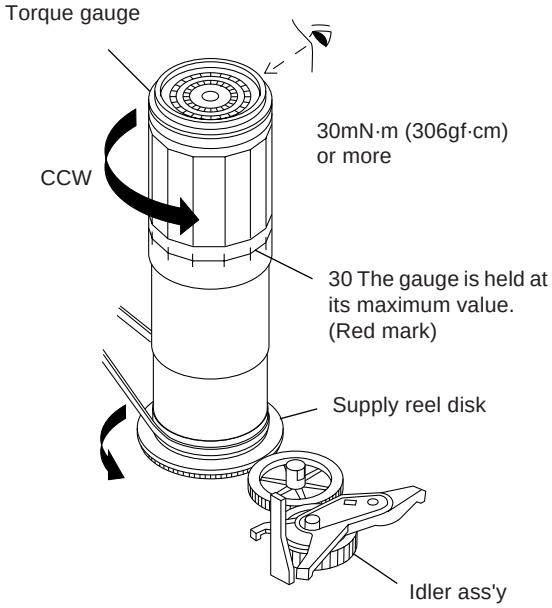


Figure 4-7.

- **Adj ustment**

1. If the rewind winding-up torque is less than the specified value, clean the capstan D.D. pulley, reel belt, and limiter pulley with cleaning liquid, rewind again, and check the winding-up torque.
2. If the winding-up torque is still out of range, replace the drive belt.

Notes:
1. Hold the torque gauge by hand so that it is not moved.
2. Do not keep the reel disk in lock state. Do not allow long-time measurement.

4-8 CHECKING AND ADJUSTMENT OF TAKE-UP TORQUE IN RECORD/PLAYBACK MODE

- **Remove the cassette housing control assembly.**
- **After short-circuiting between TP803 and TP802 provided at main PWB, plug in the power cord.**
- **Turn off the power switch.**
- **Open the cassette torque meter lid, and fix it with tape.**
- **Load the cassette torque meter into the unit.**
- **Put the weight (500g) on the cassette torque meter.**
- **Turn on the power switch.**
- **Press the picture record button, and set LP picture record mode (x2).**

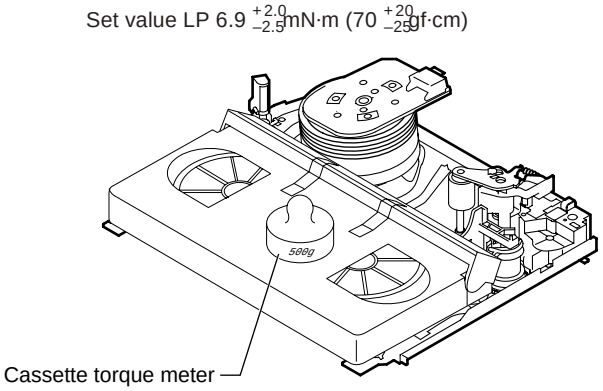


Figure 4-8 .

- **Checking**

1. Make sure that value is within the setting 6.9 $^{+2.0}_{-2.5}$mN·m (70^{+20}_{-25}gf·cm).
2. The winding-up torque fluctuates due to variation of rotation torque of limiter pulley ass'y. Read the center value of fluctuation as setting.
3. Set the LP record mode (x2) and make sure that the winding-up torque is within setting.

- **Adjustment**

If the playback winding-up torque is not within the setting, replace the limiter pulley assembly.

Note:
When the torque cassette is set, put a weight (500g) to prevent rise.
When the cassette torque meter is taken out.
Turn off the power switch.

4-9 CHECKING AND ADJUSTMENT OF TAKE-UP TORQUE IN VIDEO SEARCH REWIND MODE

- **Remove the cassette housing control assembly.**
- **After short-circuiting between TP803 and TP802 provided at main PWB, plug in the power cord.**
- **Setting**

Press the playback button and rewind button to set the video search rewinding mode.

- **Checking**

Place the torque gauge on the supply reel disk, and turn it counterclockwise very slowly (one rotation every 1 to 2 seconds) and check that the torque is within the set value 14.1 ± 3.5mN·m. (144 ± 35gf·cm)

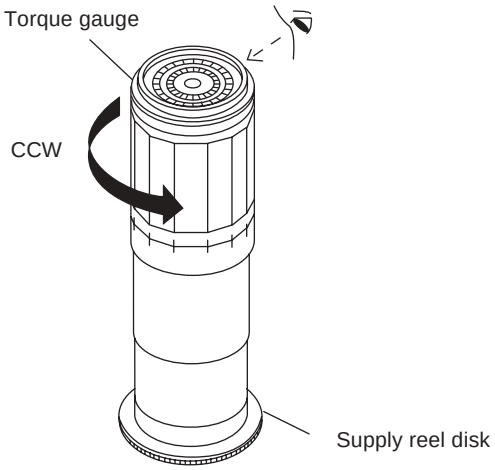


Figure 4-9.

Note:
Surely put the torque gauge on the reel disk to measure. If the torque gauge is raised, accurate measurement is impossible.

- **Adjustment**

If the rewinding playback winding-up torque is not within the setting, replace the limiter pulley assembly.

Note:
The winding-up torque fluctuates due to variation of rotation torque of supply reel disk. Read the center value of fluctuation as setting.

4-10 CHECKING THE VIDEO SEARCH REWIND BACK TENSION

- **Remove the cassette housing control assembly.**
- **After short-circuiting between TP803 and TP802 provided at main PWB, plug in the power cord.**
- **Checking**

1. After pressing the play button, press the rewind button, and set the video search rewind mode.
2. Place the torque gauge on the take-up reel disk, and turn it counterclockwise very slowly (one rotation every 2 to 3 seconds) and check that the torque is within the set value 3.7 ± 1.5mN·m (38 ± 15gf·cm).

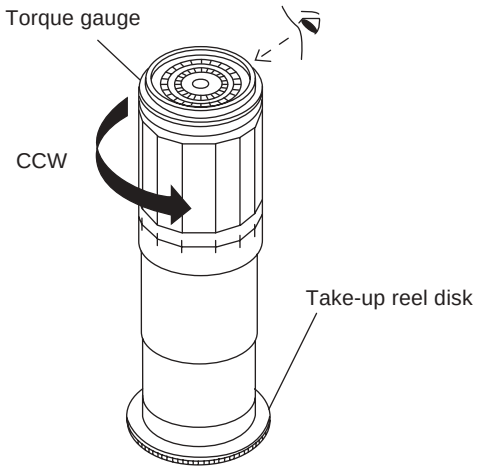


Figure 4-10.

Notes:

Set the torque gauge securely on the take-up reel disk. If it is not secure, the measurement will be incorrect.

4-11 CHECKING THE PINCH ROLLER PRESSURE

*** Checking can be perform with or without cassette housing control.**

- **Remove the cassette housing control assembly.**
- **After short-circuiting between TP803 and TP802 provided at main PWB, plug in the power cord.**
- **Checking**

Press the play button to set the playback mode.

1. Detach the pinch roller from the capstan shaft. Do not separate excessively. Or the pinch lever and pinch double action lever may disengage.
2. Engage the tension gauge adapter with the pinch roller shaft, and pull in the arrow direction.
3. Gradually return the pinch roller, and measure the pulling force when the pinch roller contacts the capstan shaft.
4. Make sure that the measured value is within setting change to 9.8 ± 2N (1.0 ± 0.2kgf).

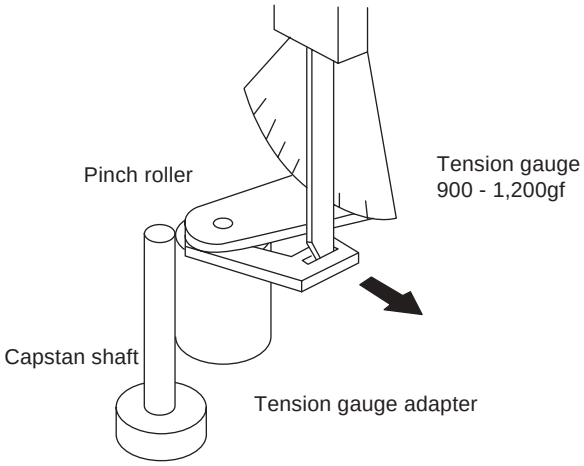


Figure 4-11.

4-12 CHECKING AND ADJUSTMENT OF TENSION POLE POSITION

*** Checking can be perform with or without cassette housing control.**

- **Remove the cassette housing control assembly.**
- **After short-circuiting between TP803 and TP802 provided at main PWB, plug in the power cord.**
- **Setting (without cassette housing control)**

1. Turn off the power switch.
2. Open the cassette tape (E-180), and fix with tape.
3. Set the cassette tape in loading state.
4. Put the weight (500g) on the cassette tape.
5. Turn on the power switch.
6. Make the adjustment with the beginning of a E-180 tape.

- **Setting (with cassette housing control)**

1. Insert cassette tape (E-180).
2. Make the adjustment with the beginning of a E-180 tape.

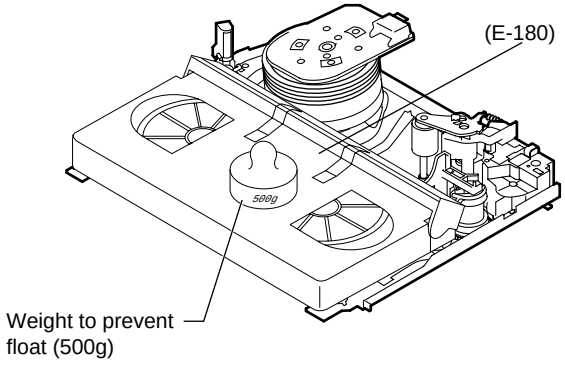
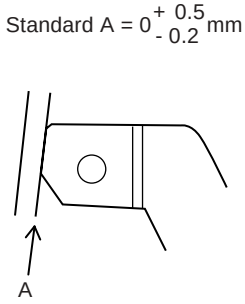


Figure 4-12.

- **Checking**

1. Set a cassette tape, push the REC button to place the unit in the SP record mode. Now check the tension pole position.
2. Visually check to see if the position of the tension pole is within the $0^{+0.5}_{-0.2}$ mm from the left side line.



Make the adjustment with the beginning of a E-180 tape.

Figure 4-13.

At left side from the reference line. (A).

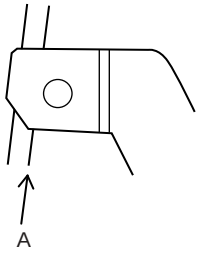


Figure 4-14.

Insert the tension pole adjustment driver to main chassis hole, and rotate clockwise.

At right side from the reference line. (A).

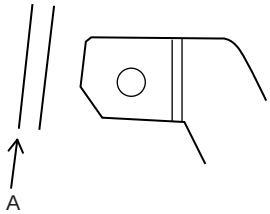


Figure 4-15.

Insert the tension pole adjustment driver to main chassis hole, and rotate counterclockwise.

Tension pole adjustment driver adjusting direction

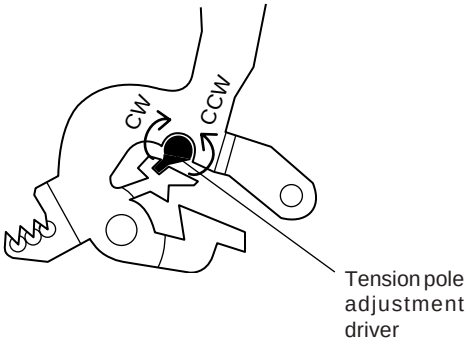


Figure 4-16.

4-13 CHECKING AND ADJUSTMENT OF RECORD/PLAYBACK BACK TENSION

*** Checking can be perform with or without cassette housing control.**

- **Remov e the cassette housing control assembly.**

- **After short-circuiting between TP8 03 and TP8 02 pro-v ided at main PWB, plug in the power cord.**

- **Setting (without cassette housing control)**

1. Turn off the power switch.
2. Open the cassette torque meter and fix with tape.
3. Set the cassette torque meter in loading state.
4. Put the weight (500g) on the cassette torque meter.
5. Turn on the power switch.

- **Setting (with cassette housing control)**

1. Insert cassette torque meter.

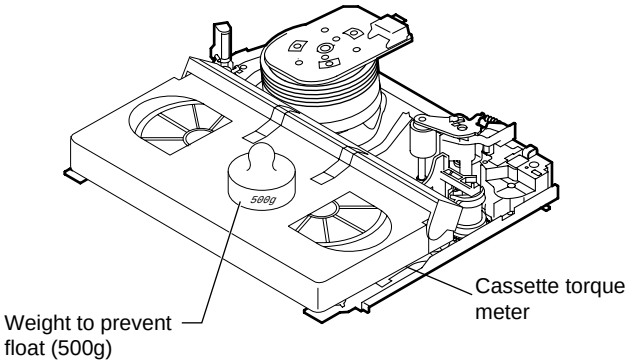


Figure 4-17.

- **Checking**

1. Push the REC button to place the unit in the SP record mode.
2. At this time ascertain that the back tension is within the setting 3.9 to 5.5mN·m (40 to 56gf·cm) by seeing the indication of torque cassette meter.

- **Adj ustment**

1. If the indication of torque cassette meter is lower than the setting, shift the tension spring engagement to the part A.
2. If the indication of torque cassette meter is higher than the setting, shift the tension spring engagement to the part B.

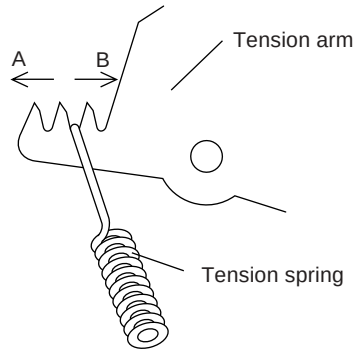
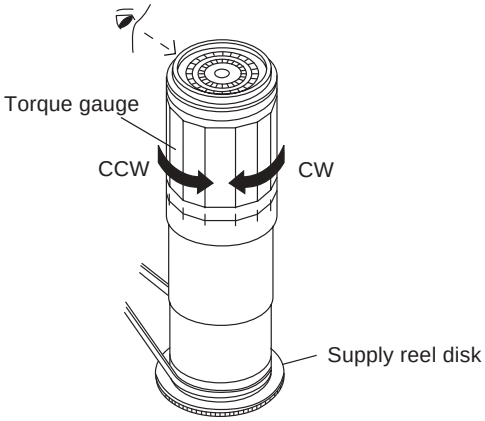


Figure 4-18.

4-14 CHECKING THE BRAKE TORQUE

- **Checking the brake torq ue at the supply side**



CCW:	$4.41 \pm^{+2.0}_{-1.5}$ mN·m ($45 \pm^{+20}_{-15}$ gf·cm)
CW:	$4.12 \pm^{+1.5}_{-1.2}$ mN·m ($42 \pm^{+15}_{-12}$ gf·cm)

Figure 4-19.

- **Remov e the cassette housing control assembly.**

- **After short-circuiting between TP8 03 and TP8 02 prov ided at main PWB, plug in the power cord.**

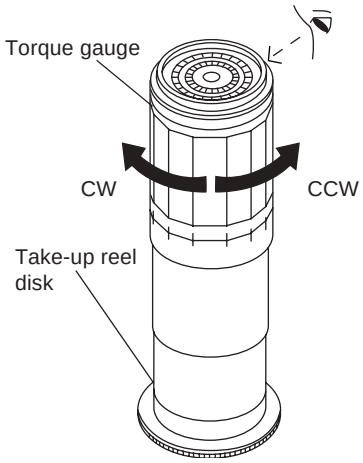
- **Setting**

1. Set a torque gauge to zero on the scale. Place it on the supply reel disk.
2. Switch from the FF mode to the STOP mode.
3. Disconnect the power cord.
4. Please check Idler gear not contact with reel relay gear (SU side)

- **Checking**

Turn the torque gauge at a rate of about one turn/2 sec in the CW direction/CCW direction with respect to the supply reel disk so that the reel disk and torque gauge pointer rotate at equal speed, and make sure that the value is within the setting (CW direction: $4.12 \pm^{+1.5}_{-1.2}$ mN·m (42^{+15}_{-12} gf·cm); CCW direction: $4.41^{+2.0}_{-1.5}$ mN·m (45^{+20}_{-15} gf·cm).

- **Checking the brake torq ue at the take-up side**



CCW:	$4.41 \pm^{+2.0}_{-1.5}$ mN·m ($45 \pm^{+20}_{-15}$ gf·cm)
CW:	$4.12 \pm^{+1.5}_{-1.2}$ mN·m ($42 \pm^{+15}_{-12}$ gf·cm)

Figure 4-20.

- **Remov e the cassette housing control assembly.**

- **After short-circuiting between TP8 03 and TP8 02 prov ided at main PWB, plug in the power cord.**

- **Setting**

1. Switch from the FF mode to the STOP mode.
2. Disconnect the power cord.
3. Set a torque gauge to zero on the scale. Place it on the take-up reel disk.
4. Please check Idler gear not contact with reel relay gear (TU side)

- **Checking**

1. Turn the torque gauge at a rate of about one turn/2 sec in the CCW direction/CW direction so that the reel disk and torque gauge pointer rotates at equal speed and make sure that the value is within the setting (CCW direction: $4.41^{+2.0}_{-1.5}$ mN·m (45^{+20}_{-15} gf·cm), CW direction: $4.12^{+1.5}_{-1.2}$ mN·m (42^{+15}_{-12} gf·cm).

2. Adjustment of the brake torque at the supply side and the take-up side

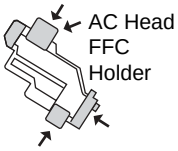
- Unless the supply side brake torque or take-up side brake torque is within the setting, clean the felt surface of reel disk (supply, take-up) brake lever, check again the brake torque.
- If value cannot be set within the setting yet, replace the main brake ass'y or main brake spring.

4-15 REPLACEMENT OF A/C (AUDIO/CONTROL) HEAD

1. In eject position unplug the power cord.

- **Removal**

1. Take out FFC holder from main chassis. (Push 3 hooking point and pull-up the holder).
2. Remove the screws ①②③, Tilt screw.
3. Unsolder the PWB fitted to the A/C head.



Notes:

1. When replacing, never touch the head. If you touched, clean with the cleaning liquid.
2. When removing the screw ③, take care so that the spring may out.

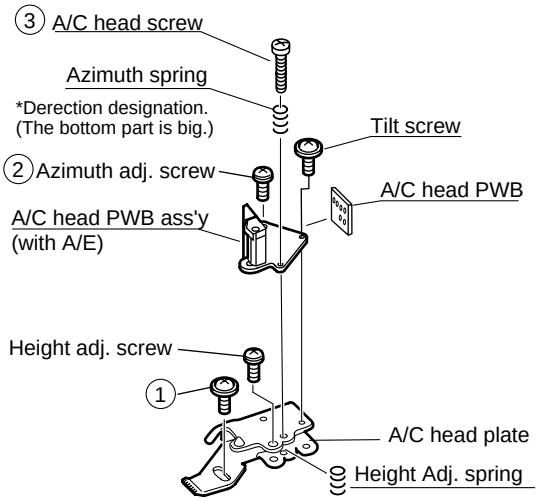


Figure 4-21.

- **Replacement**

1. Solder the removed PWB to the new head assembly.
2. Adjust the height from the A/C head arm (lower surface) to the A/C head plate to 10.8mm with slide calipers. (3 places of azimuth screw section, tilt screw section and A/C head front section) (See the figure below.)

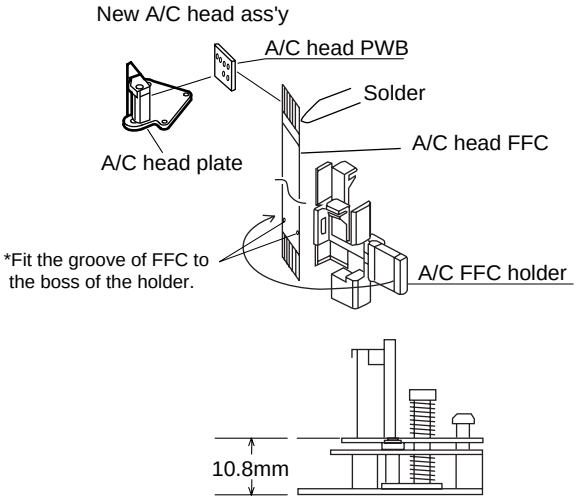


Figure 4-22.

3. Align the left end of gear of A/C head arm with the punched mark of chassis, tentatively tighten the screws ① so as to ensure smooth motion of A/C head arm. Tightening torque must be 0.45 ± 0.05N·m (4.5 ± 0.5kgf·cm).

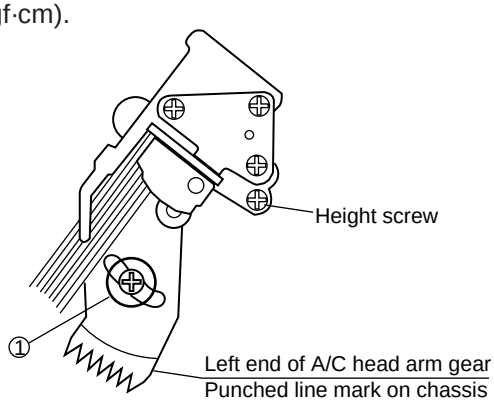


Figure 4-23.

Note:

1. If the screw ① is tighten tentatively too loose, the azimuth and height of A/C head may change when they are finally tightened. Therefore care must be taken.
2. After completion of A/C head be sure to adjust tape running. (Execute the running adjustment by the method described in **4-17**.)

4-16 A/C HEAD HEIGHT ROUGH ADJUSTMENT

- **Setting**

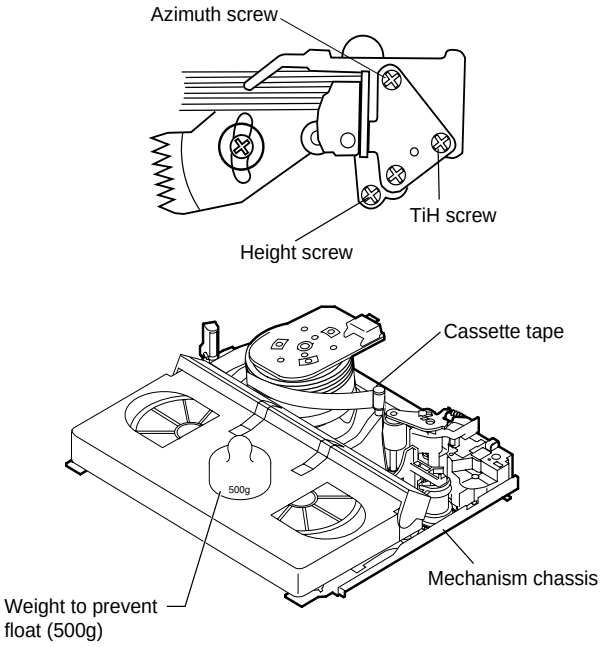


Figure 4-24.

1. Set the cassette tape in the unit.
2. Press the PLAY button to put the unit in the playback mode.
3. Roughly adjust the height of the A/C head by turning the height screw until the tape is in the position shown below.

A/C head

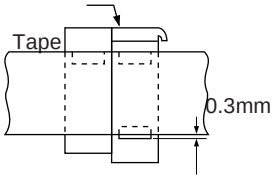


Figure 4-25.

- **Adj ustment**

Adjust the height screw visually so that the control head is visible 0.3mm below the bottom of the tape.

4-17 ADJUSTMENT OF TAPE DRIVE TRAIN

1. Tape run rough adjustment
   ① Check and adjust the position of the tension pole. (See **4-12**.)
   ② Check and adjust the video search rewind back tension. (See **4-10**.)
   ③ Connect the oscilloscope to the test point for PB ATR signal output (TP201). Set the synchronism of the oscilloscope to EXT. The PB ATR signal is to be triggered by the head switching pulse (TP202).
   ④ Set the alignment tape (VROCPSV) to play.

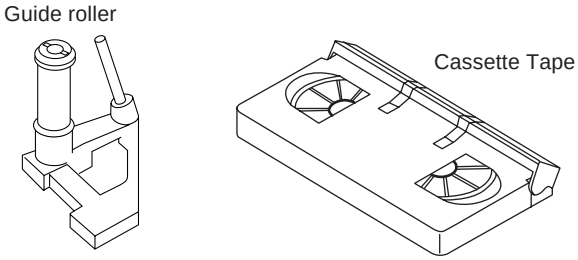


Figure 4-26.

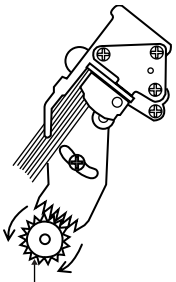
   ⑤ Press the tracking button (+), (–) and change the ATR signal waveform from max to min and from min to max. At this time make sure that the ATR signal waveform changes nearly parallel.
   ⑥ Unless the ATR signal waveform changes nearly parallel, adjust the height of supply side and take-up side guide roller so that the envelope waveform changes nearly parallel. (For ATR signal adjustment procedure refer to Figure 4-30.)
   ⑦ Turn the tilt screw to remove the tape crease at the fixing guide flange.
   Playback the tape and check for tape crease at the fixing guide flange.
   (1) If there is no tape crease
   Turn the tilt screw clockwise so that tape crease appears once at the flange, and then return the tilt screw so that the crease disappears.
   (2) If there is tape crease
   Turn counterclockwise the tilt screw so that the tape crease disappears.
   (Reference) If the tilt screw is turned clockwise crease appears at the lower flange.

Notes:

1. Previously set the tracking control in the center position, and adjust the ATR signal waveform to maximum with X value adjustment nut. Thereby the tape run rough adjustment is facilitated.
2. Especially the outlet side ATR signal waveform must have higher flatness.

Figure 4-27.

2. Adjustment of A/C head height and azimuth
   ① Perform the initial setting of A/C head position by the method stated in "**4-15** Replacement 3" .
   ② Connect the oscilloscope to the audio output terminal.
   ③ Using the alignment tape in which 1 kHz linear audio signal has been recorded, adjust the height screw so as to get max audio output.
   ④ Using the alignment tape in which 7 kHz linear audio signal has been recorded, adjust the azimuth screw so as to get max audio output.
   ⑤ The adjustment of ③ and ④ twice or three times repeat, and finally adjust ④.

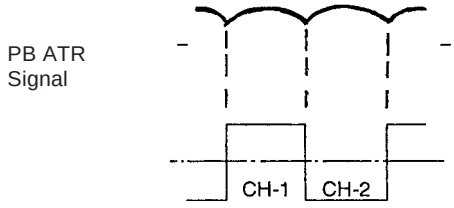


For X value adjustment
Adjust the X value, turning the gear-type screwdriver.

Figure 4-28 .

3. Tape run adjustment
   ① Connect the oscilloscope to PB ATR signal output test point, set oscilloscope sync to EXT, trigger-input the PB CHROMA signal (head switching pulse).
   ② Rough adjustment of X value
   Tentatively fix A/C head arm screws ① by the method described in **4-15** " Replacement 3" .
   Playback the alignment tape (VROCPSV) and shortcircuit between TP801 and TP802. As a result the auto-tracking is automatically cancelled, so that the X value adjustment mode is set.
   Move the A/C head with the X value adjustment gear driver (JiGDRiVER-6) by the method shown in Figure 4-33, and adjust the A/C head so as to get the maximum ATR signal waveform. (Note: When the A/C head is adjusted, adjust so that the maximum ATR signal waveform is obtained nearest the position of initial setting made in **4-15**.)

③ Next, press the tracking button (+), (–) and change the ATR signal waveform from max to min and from min to max. At this time adjust the height of supply and take-up side guide roller with the adjustment driver (JiGDRiVERH-4) so that the ATR signal waveform changes nearly parallel.
④ If the tape is lifted or sunk from the helical lead surface, the PB ATR signal waveform appears as shown in Figure 4-30.
⑤ Press the tracking button (+), (–) and make sure that the ATR signal waveform changes nearly parallel.
⑥ Finally, check tape crease near the reverse guide. If tape crease is found, adjust tilt screw 45˚ counter clockwise. Small tape crcase will appear at retain guide after this adjustment finished.



Head switching pulse

Figure 4-29.

4. A/C head X value adjustment
① Fix A/C head arm screws ① by the method described in **4-15** " Replacement 3" .
② Playback the alignment tape (VROCPSV), and shortcircuit between TP801 and TP802. As a result the auto-tracking is automatically cancelled, so that the X value adjustment mode is set.

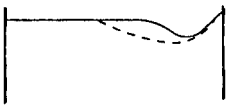
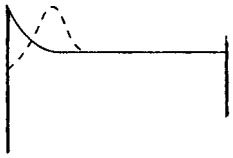
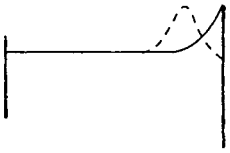
	When the tape is above the helical lead.		When the tape is below the helical lead.	
	Supply side	Take-up side	Supply side	Take-up side
				
				
Adjustment	Supply side guide roller rotated in clockwise direction (lowers guide roller) to flatten ATR signal.	Take-up side guide roller rotated in clockwise direction (lowers guide roller) to flatten ATR signal.	Supply side guide roller rotated in counterclock-wise direction (raises guide roller) to make the tape float above the helical lead. The supply side guide roller is then rotated in the clockwise direction to flatten the ATR signal.	Take-up side guide roller rotated in counterclock-wise direction (raises guide roller) to make the tape float above the helical lead. The take-up side guide roller is then rotated in the clockwise direction to flatten the ATR signal.

Figure 4-30.

③ Move the A/C head with the X value adjustment gear driver by the method shown in Figure 4-33, and adjust the A/C head so as to get the maximum ATR signal waveform. (Note: At this time adjust so as to get the maximum ATR signal waveform nearest the A/C head position which has been set in case of X value rough adjustment as stated in **4-17**, 3- ②.)
④ Adjust the playback switching point (Refer to the electric adjustment method.)
⑤ Playback the self-picture-recorded tape, and check the flatness of ATR signal waveform and sound.

Notes:
When the A/C head X value adjustment is performed, be sure to perform at first X value rough adjustment (refer to **4-17**, 3-②).

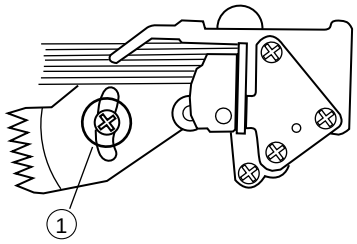


Figure 4-31.

4-18 REPLACEMENT OF THE CAPSTAN D.D. (DIRECT DRIVE) MOTOR

- Remove the mechanism from the set.

- **Removal (Follow the order of indicated numbers.)**

1. Unsolder loading motor wire and drum FFC .
2. Remove the reel belt ①.
3. Remove the three screws ②.

- **Reassembly**

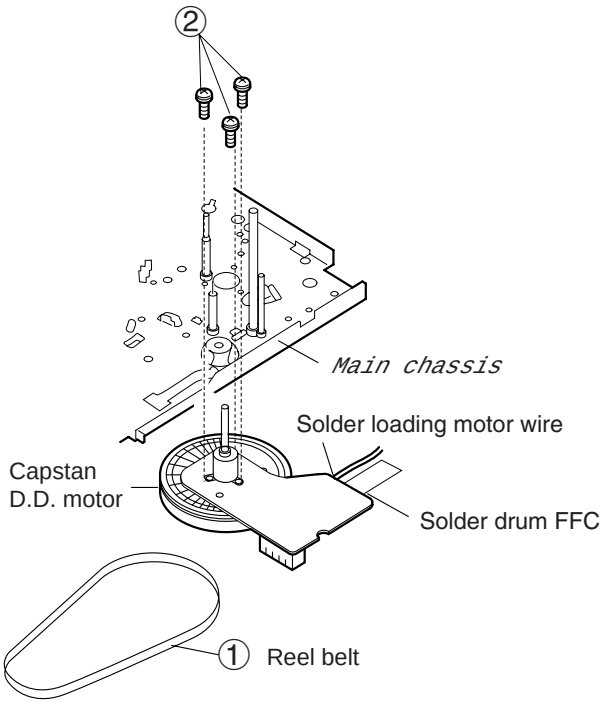


Figure 4-32.

1. Taking care so that the capstan shaft does not contact the mechanism chassis, set its position on the mechanism chassis, and then install with the three screws.
2. Install the reel belt.
3. Solder loading motor wire and insert drum FFC .

Notes:

1. After installing the capstan D.D. motor, be sure to rotate the capstan D.D. motor and check the movement.
2. Set the tape, and check for the tape crease near the reverse guide in the playback mode. Adjust the A/C head and azimuth as stated in **4-17** item 2.

4-19 REPLACEMENT OF DRUM D.D. MOTOR

1. Set the ejection mode.
2. Withdraw the main power plug from the socket.

- **Removal (Perform in numerical order.)**

1. Disconnect the FFC cable ①.
2. Unscrew the D.D. stator assembly fixing screws ②.
3. Take out the D.D. stator assembly ③.
4. Unscrew the D.D. rotor assembly fixing screws ④.
5. Take out the D.D. rotor assembly ⑤.

Notes:

1. In removing the D.D. stator assembly, part of the drum earth spring pops out of the pre-load collar. Be careful not to lose it.
2. Install, so that the D.D. rotor ass'y and upper drum ass'y mounting direction check holes align. (Align the upper drum dent with the rotor hole.)
3. Be careful not to damage the upper drum or the video head.
4. Protect the hole elements from shock due to contact with D.D. stator or D.D. rotor ass'y.
5. After installation adjust the playback switching point for adjustment of servo circuit.

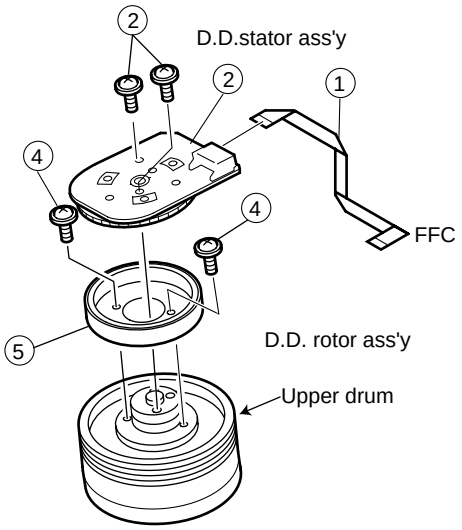


Figure 4-33.

4-20 REPLACING THE UPPER AND LOWER DRUM ASSEMBLY

• Replacement (Perform in the numerical order)
① Remove the motor as stated in **4-19** D.D. motor replacement.
② Remove the drum earth brush ass' y②.
③ Remove the upper and lower drum assembly from main chassis ①.
④ Remove the drum FFC holder ③.

[Cares when replacing the drum]
1. Be careful so that the drum earth brush is not lost.
2. Do not touch directly the drum surface.
3. Fit gently the screwdriver to the screws.
4. Since the drum assembly is an extremely precise assembly, it must be handled with utmost care.
5. Make sure that the drum surface is free from dust, dirt and foreign substances.
6. After replacing the drum be sure to perform the tape running adjustment.
   After that, perform also the electrical adjustment.
   • Playback switching point adjustment
   • X-position adjustment and check
   • Standard and x-3 slow tracking adjustment
7. After replacing the drum clean the drum.

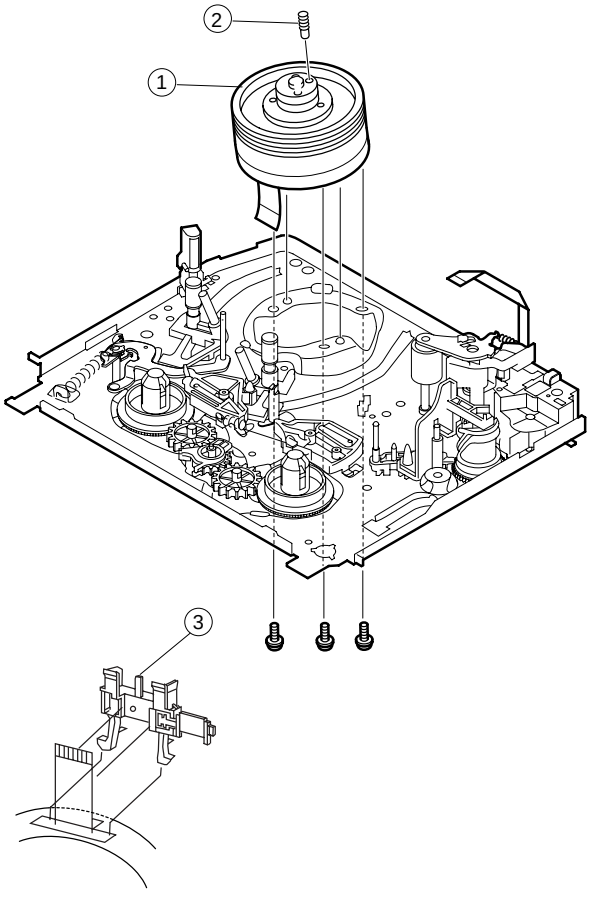


Figure 4-34.

4-21 ASSEMBLING OF PHASE MATCHING MECHANISM COMPONENTS

- **Assemble the phase matching mechanism components in the following order.**

1. Assemble the reverse guide lever and pinch drive cam.
2. Mounting the shifter (on the back of the mechanism chassis).
3. Mounting the master cam (on the back of the mechanism chassis).
4. Assemble synchro gear.
5. Assemble the loading motor parts.

• PINCH DRIVE CAM AND REVERSE GUIDE LEVER ASSEMBLING METHOD.

(Place the following parts in position in numerical order.)
(1)Pinch drive cam ①
(2)Reverse guide spring ②
(3)Reverse guide lever ass' y③
(4)Open guide ④

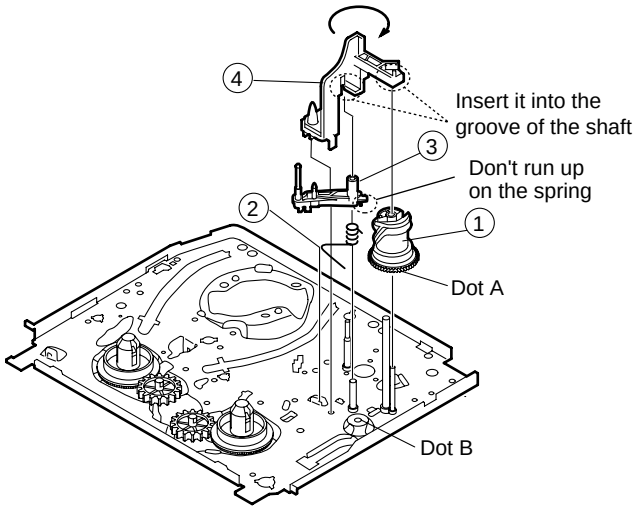
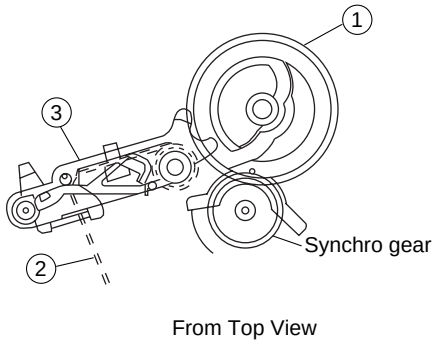
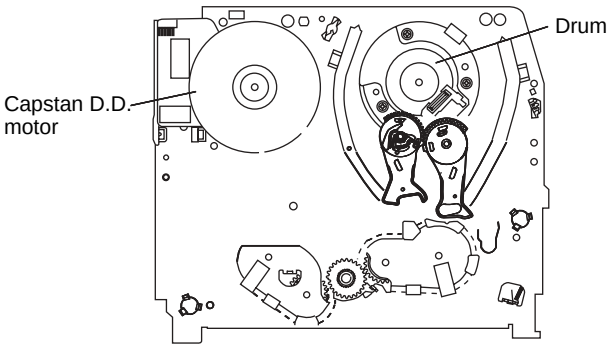


Figure 4-35.



From Top View

4-22 INSTALLING THE SHIFTER



(Bottom side of mechanism chassis)

Figure 4-36.

1. Make sure that the loading arm T and S are at the Phase-Matching point as shown below ⓐ.
2. Fix the shifter position setting part to the roading arm T position setting part as shown in figure ⓑ
3. Make sure tension arm not run on the shifter as shown in figure ⓒ.

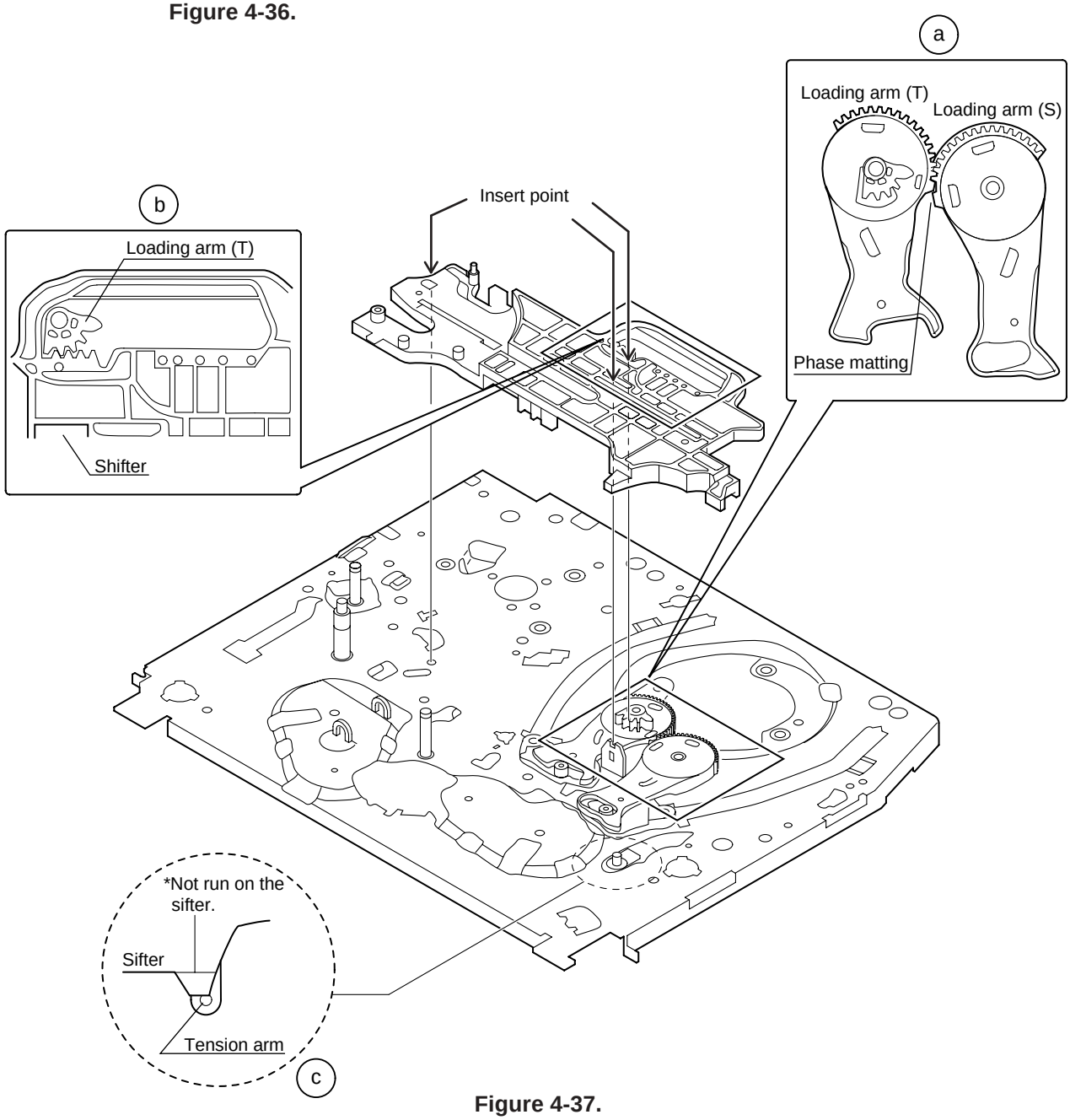


Figure 4-37.

4-23 INSTALLING THE MASTER CAM (AT REAR SIDE OF MECHANISM CHASSIS)

1. Make sure beforehand that the shifter is at initial position. (Right side from bottom view)
2. Place the master cam in the position as shown below.
3. Fix the E ring.

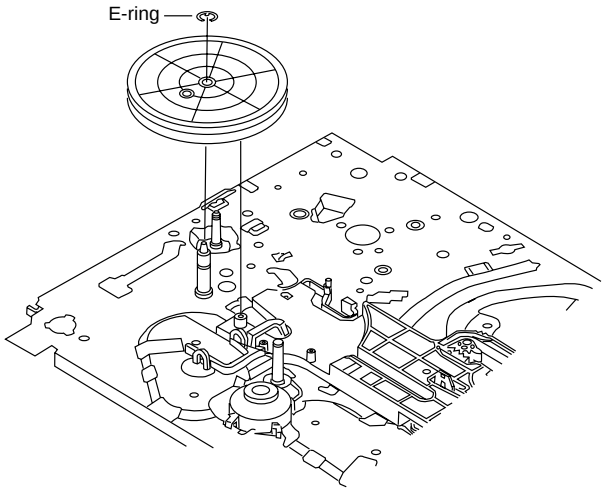


Figure 4-38 -1.

4. Adjust the master cam and pinch drive cam, fix the synchro gear in correct position.

Note:
See the figure below for the phase matching between the master cam synchro gear and pinch drive cam.

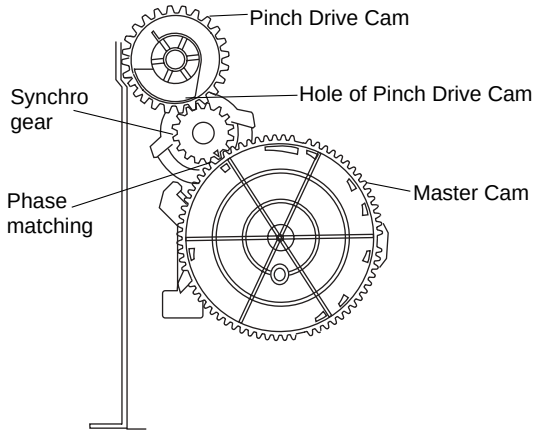


Figure 4-38 -2.

4-24 REPLACEMENT OF LOADING MOTOR

- **Removal**

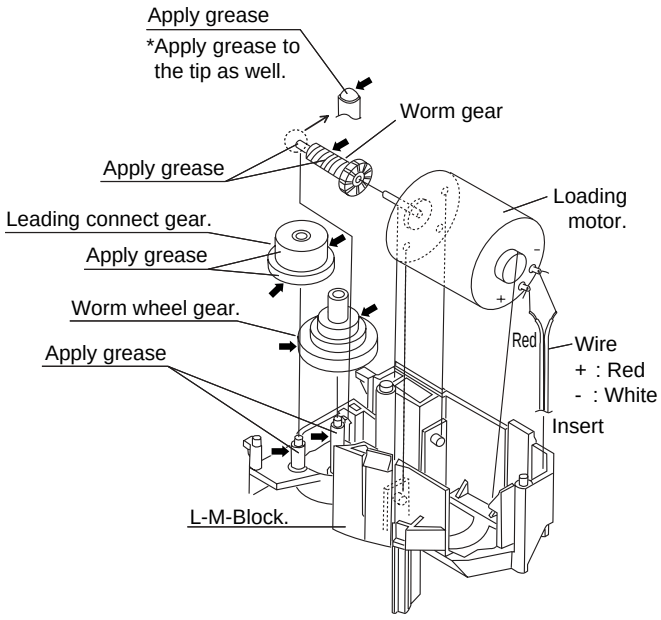


Figure 4-39.

- **Replacement**

Remove the loading motor, and install the replacement loading motor as shown below.

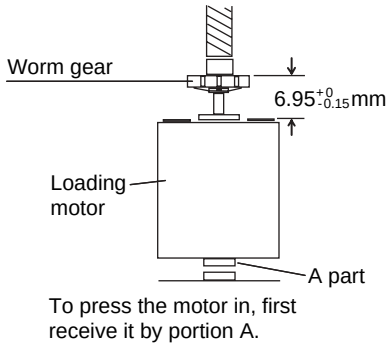
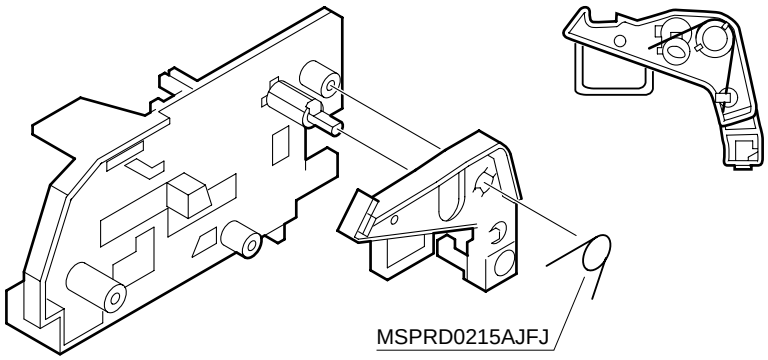


Figure 4-40.

The loading motor pressing-in must be less than 196N (20 kgf).
Adjust the distance between motor and pulley to 6.95 $^{+0}_{-0.15}$mm.

4-25 ASSEMBLY OF CASSETTE HOUSING

1. Proof lever Proof lever spring and Holder R



*Proof lever spring fixing direction designated.

Figure 4-41.

2. 0pen lever, Sensor Plate and Frame R

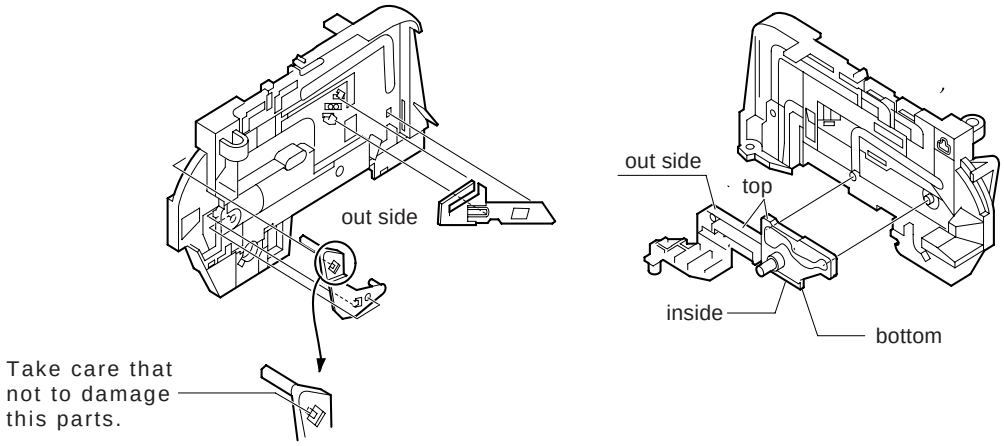


Figure 4-42.

3. Spring to Drive Arm R

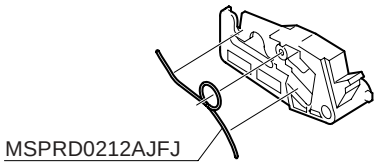


Figure 4-43.

4 Frame R, Frame L, Drive Arm R, Drive Arm L, Upper Plate.

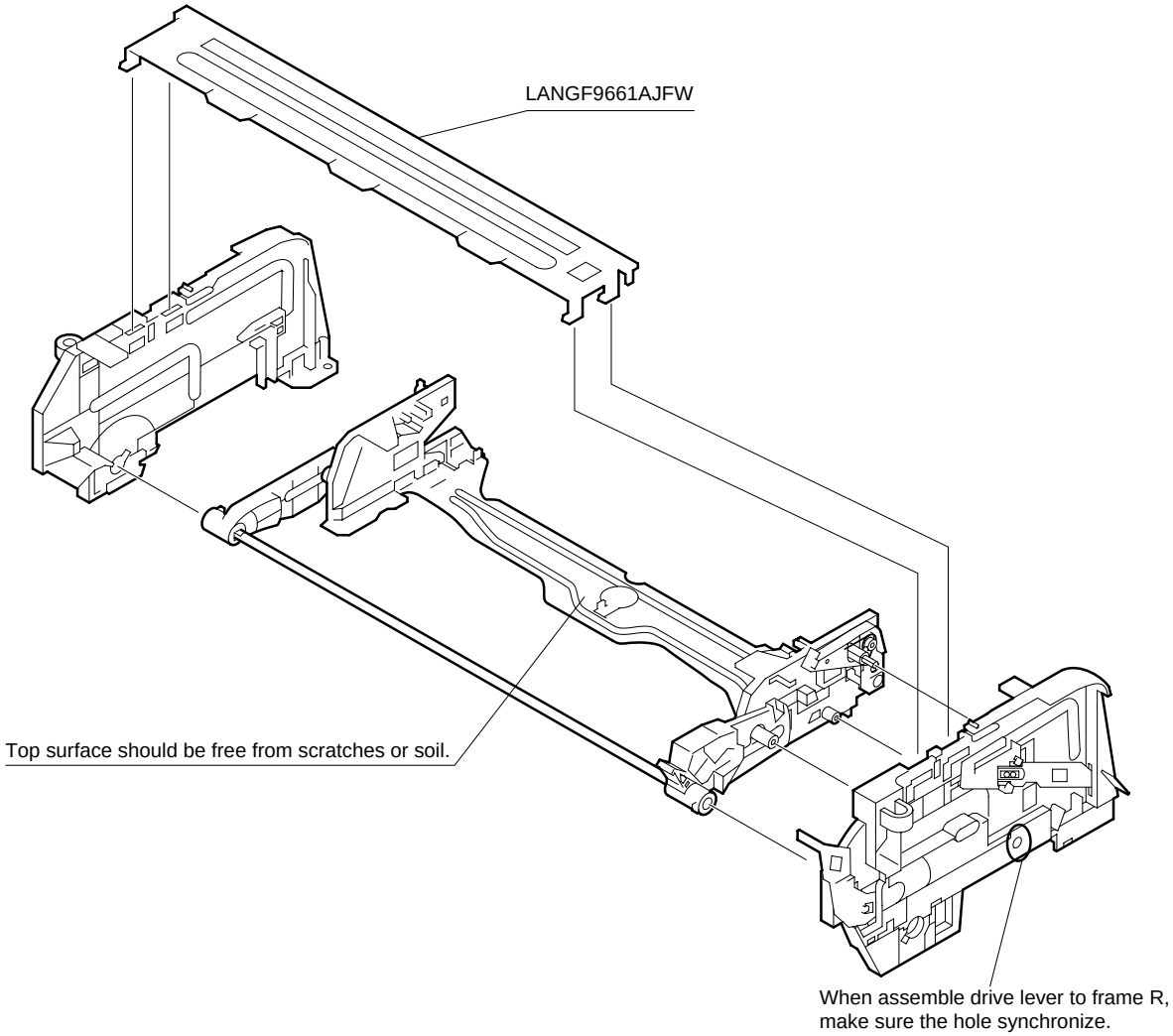

LANGF9661AJFW
Top surface should be free from scratches or soil.
When assemble drive lever to frame R,
make sure the hole synchronize.

Figure 4-44.

5. ELECTRICAL ADJUSTMENT

Notes:

- Before the adjustment:
  Electrical adjustments discussed here are often required after replacement of electronic components and mechanical parts such as video heads.
  Check that the mechanism and all electric components are in good working condition prior to the adjustments, otherwise adjustments can not be completed.

- Instruments required:
  - ◎ Colour TV monitor
  - ◎ Audio signal generator
  - ◎ Blank video cassette tape
  - ◎ Screwdriver for adjustment
  - ◎ Colour bar singnal generator
  - ◎ Dual-trace oscilloscope
  - ◎ AC milli-voltmeter
  - ◎ Alignment tape(VROCPSV)

- **Location of controls and test points**

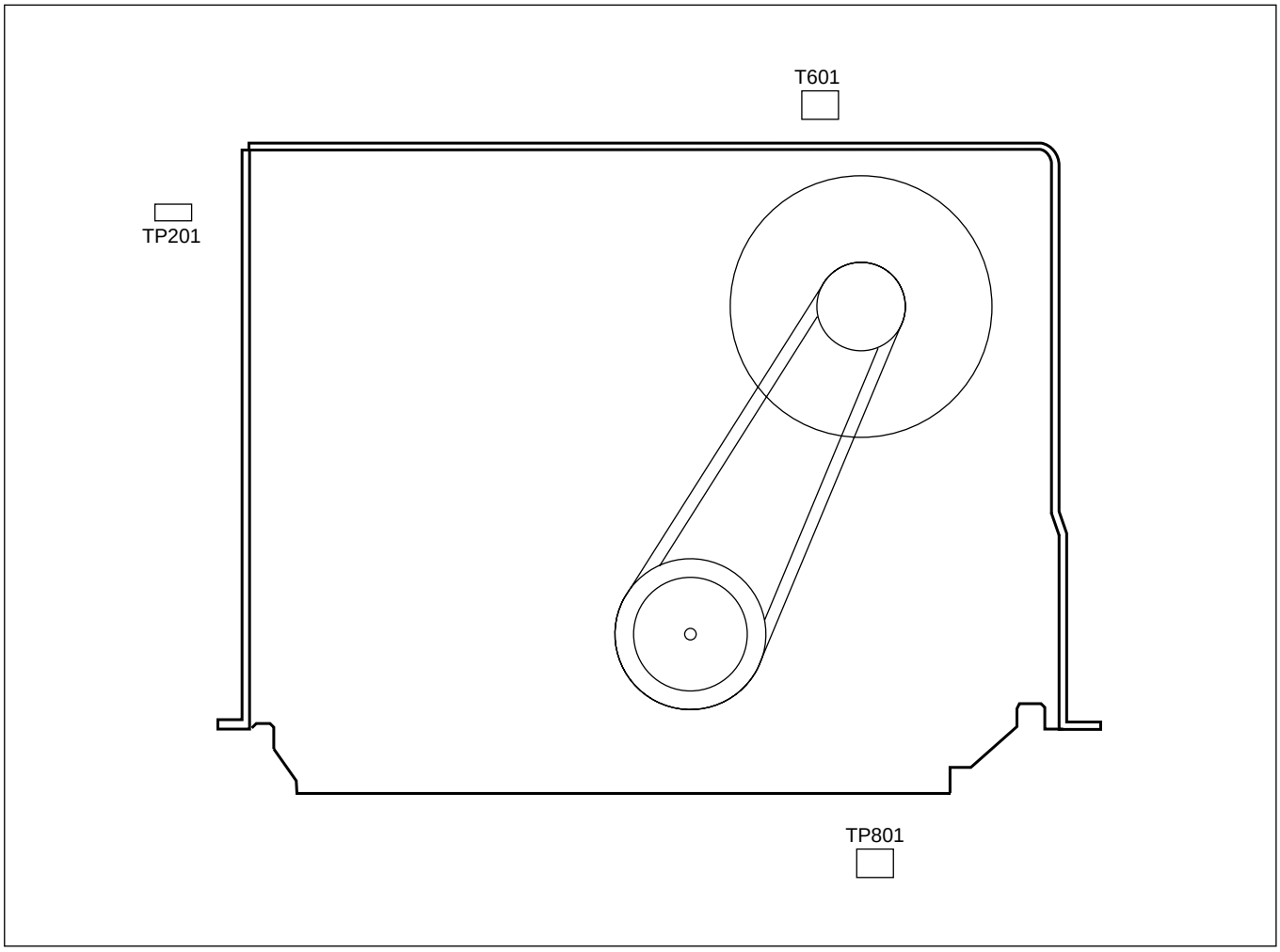


Figure 5-1.

SERVO CIRCUIT ADJUSTMENT

ADJUSTMENT OF HEAD SWITCHING POINT

Measuring instrument	Dual-trace oscilloscope Colour TV monitor
Mode	Playback
Cassette	Alignment tape Head / Tape 2 / CBZF 2LP / BBZG 4 / CBZF 4HiFi / CBZF
Test point	Pin(2) of TP201 (H.SW.P.) to CH-1, VIDEO OUT jack to CH-2 (CH-1 trigger slope switch at (+), Internal trigger at CH-1 side.)
Specification	6.5 ± 0.5H (lines)

1. Remove the front panel and play the alignment tape.
2. Get TP801 short circuited or press press " TEST" key(47H) at Universal remote control to call the test mode. (LCD will blinking as tracking goes to center)
3. Press " PLAY" key.
   Auto PG Mode will be ON and playback mark " ▶ " blinking.
4. Press " STOP" key
   " ▶ " blinking stops and auto adjustment finished.
5. Check that V-Sync is 6.5±0.5H and the waveform is as shown in Figure 5-2.

Note:

For manual PG Adjustment,press FF or REW key at the Test Mode to set the tracking in center.

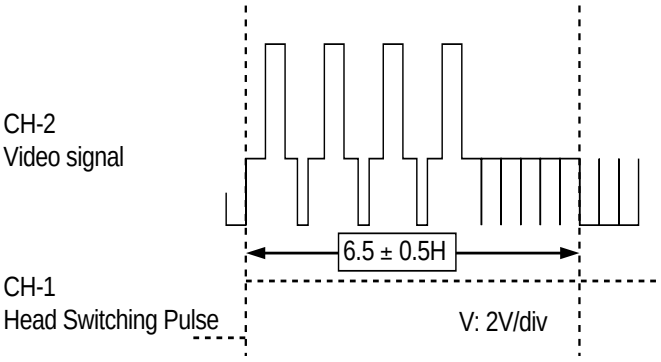


Figure 5-2.

ADJUSTMENT OF PAL SYSTEM FV (False Vertical Sync) OF STILL PICTURE

Measuring instrument	Colour TV monitor
Mode	Playback still
Cassette	Self-recorded tape (SP/LP,EP mode) (See Note below ①)
Control	Tracking control buttons (+) or (-)
Specification	No vertical jitter of picture

1. Play a self-recorded tape.
2. Press the PAUSE/STILL button to freeze the picture.
3. Adjust (+) or (-) TRACKING buttons on the remote control so that the vertical jitter of the picture is minimized.

Note:

① Self-recorded tape is a cassette which program was recorded by the unit being adjusted.

② The FV goes back to the it's initial state when the unit is put into the system controller reset mode due to power failure,etc.
In this case, preset the FV once again.

Y/C CIRCUIT ADJUSTMENT

CHECKING OF VIDEO E-E LEVEL

Measuring instrument	Oscilloscope
Mode	E-E or Record
Input signal	EIA colour bar (1.0Vp-p)
Test point	VIDEO OUT jack
Specification	1.0 ± 0.2 Vp-p

1. Connect a 75 ohm terminating resistor to the VIDEO OUT jack and connect an oscilloscope across this termi-nating resistor.
   (See Note below.)
2. Feed a colour bar signal to the VIDEO IN jack.
3. Make sure that the E-E signal amplitude is 1.0Vp-p as shown in Figure 5-3.

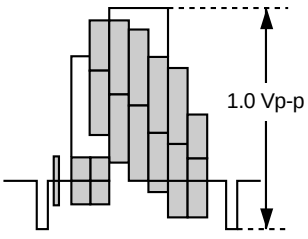


Figure 5-3.

Note:

If the 75 ohm terminating resistor is missing, the signal amplitude will be doubled.

CHECKING OF PLAYBACK LEVEL

Measuring instrument	Oscilloscope
Mode	Record/Playback
Cassette	Self-recorded tape (See Note below 2)
Specification	1.0±0.2Vp-p

1. Be sure that E-E level has been correctly specificed.
2. Connect a 75 ohm terminating resistor to the VIDEO OUT jack and connect an oscilloscope across this terminating resistor.(See Note below 1)
3. Play a self-recorded tape.
4. Make sure that the output signal amplitude is 1.0Vp-p as shown in Figure 5-4.

Note:

①If the 75 ohm terminating resistor is missing, the signal amplitude will be doubled.

②Self-recorded tape is a tape which program was recorded by the unit being adjusted.

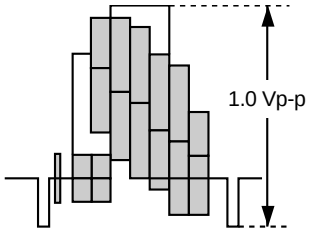


Figure 5-4.

AUDIO CIRCUIT ADJUSTMENT

CHECKING OF E-E LEVEL

Measuring	AC milli-voltmeter instrument
Mode	E-E/Record
Input signal	1kHz, –3.8 dBs
Test point	AUDIO OUT jack
Specification	–3.8 ± 2dBs

1. Connect an AC milli-voltmeter to the AUDIO OUT jack.
2. Feed the audio signal shown in table to the AUDIO IN jack.
3. Put the unit in E-E or recording mode.
4. Make sure that the output level is value shown in table.

CHECKING OF AUDIO RECORD LEVEL

Measuring instrument	AC milli-voltmeter
Mode	Record/playback
Input signal	1kHz, –8.0 dBs
Test point	AUDIO OUT jack
Specification	–8.0 ± 3dBs

1. Connect an AC milli-voltmeter to the AUDIO OUT jack.
2. Feed the audio signal shown in table to the AUDIO IN jack.
3. Make the self-recording and playback of the signal.
4. Make sure that the output level is value shown in table.

CHECKING OF ERASE VOLTAGE AND OSCILLATION FREQUENCY

Measuring instrument	Oscilloscope
Mode	Record
Test point	Full erase head
Control	T601
Specification	70 ± 5kHz, 40Vp-p or greater

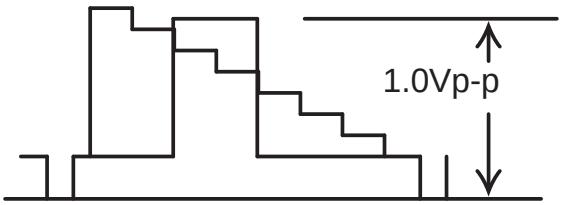
Y/C CIRCUIT ADJUSTMENT

ADJUSTMENT OF EE Lev el Confirmation

Measuring instrument	Osiloscope
Mode	Record
Cassette	Self-recorded tape (SP/EP mode)(See Note below)
Test point	VIDEO OUT 21PIN or RCA Port (75Ω Terminal)
VIDEO	PAL Colour Bar(1Vp-p)
Specification	1.0±0.2Vp-p

Observe the video output using the osiloscope and confirm as the above diagram

※ V:200mV/div
H:20μ sec/div

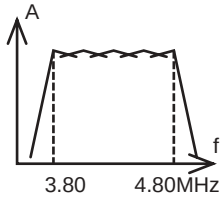


ADJUSTMENT OF FM Carrier Confirmation

Measuring instrument	Spectrum Analyzer
Mode	Record
Cassette	Self-recorded tape
Test point	YC CHIP Pin98
VIDEO	PAL Colour Bar(1Vp-p)
Specification	3.8MHz±50KHz

ADJUSTMENT OF Dev iation Confirmation

Measuring instrument	Spectrum Analyzer
Mode	Record
Cassette	Self-recorded tape
Test point	YC CHIP Pin98
VIDEO	Colour Bar(1Vp-p)
Specification	4.8MHz±100KHz

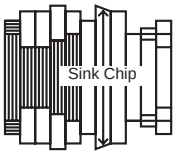


< Deviation>
Confirm the white peak frequency follow the standard value.
(the deviation between shinkchip and f white peak is 1MHz±100KHz)

ADJUSTMENT OF REC Current Confirmation

Measuring instrument	Osiloscope
Mode	Record
Cassette	Self-recorded/Playback tape
Test point	YC CHIP Pin98
VIDEO	Colour Bar(1Vp-p)
Specification	about300mVp-p

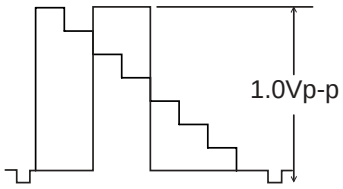
< Diagram A>



Confirm the Sink chip is as the left diagram < Diagram A> .

ADJUSTMENT OF PB Lev el Confirmation

Measuring instrument	Osiloscope
Mode	Playback
Cassette	Self-recorded/Playback tape
Test point	VIDEO OUT port (75Ω terminal)
VIDEO	Colour Bar
Specification	Check place 1. (1±0.2Vp-p)



Measure the picture output port using the 75Ω terminal Osiloscope and confirm the diagram same as the left diagram.

∗ V:200mV/div
H:20μsec/div

ADJUSTMENT OF S-PICUTRE Confirmation

Measuring instrument	Osiloscope
Mode	Recorded/Playback
Cassette	Self-recorded/Playback tape
Test point	VIDEO OUT
VIDEO	mono-sco

Receive the mono-sco.
Confirmation : make sure no black split at the mono-sco picuture during the self-Rec PB when the S-PICTURE is ON with the S-PICTURE ON/OFF,make sure the pinture level at the wedge part is change.
(S-PICUTRE ON - about 260 line)
(S-PICUTRE OFF about 240 line)

HIFI Audio Circuit ADJUSTMENT

ADJUSTMENT OF EE Lev el Confirmation HIFI Lch, Rch

Measuring instrument	Voltmeter
Mode	EE
Cassette	Optional
Test point	AUDIO OUT
VIDEO	Optional
AUDIO	AUDIO IN at 1KHz -3.8dBs
Specification	-3.8±2dBs

ADJUSTMENT OF PB Lev el Confrimation HIFI Lch, Rch

Measuring instrument	Voltmeter
Mode	Playback
Cassette	Alignment Tape VRO-CBFF
Test point	AUDIO OUT
VIDEO	Optional
AUDIO	Optional
Specification	-3.8±2dBs

∗ For this item, variable the tracking switch, and confirm the changing of the normal mode.

ADJUSTMENT OF HIFI Lch, Rch Sela Rec/PB Lev el Confirmation HIFI Lch, Rch

Measuring instrument	Voltmeter
Mode	Recorded/Playback
Cassette	Self-recorded tape
Test point	AUDIO OUT
VIDEO	Optional
AUDIO	AUDIO IN at 1KHz -3.8dBs
Specification	-3.8±2dBs

ADJUSTMENT OF LINE3(FRONT) INPUT Lev el Confirmation HIFI Lch, Rch

Measuring instrument	Voltmeter
Mode	EE
Cassette	Self-recorded tape
Test point	AUDIO OUT
VIDEO	Optional
AUDIO	AUDIO IN at 1KHz -3.8dBs
Specification	-3.8±2dBs

TUNER/IF Circuit ADJUSTMENT

ADJUSTMENT OF AFT Adj ustment Confirmation(except France)

Measuring instrument	Digital Voltmeter
Mode	EE
Test point	TU101 pin23
Specification	2.5±0.5V

E-12ch, Input level 70dBμ
While selecting channel input TEST MODE(press once on TEST KEY R/C) and select E-12ch.
(Just Tuning)

HM I40ch
LM I-Jch
} Adjustment

ADJUSTMENT OF AFT Adj ustment Confirmation (France)

Measuring instrument	Digital Voltmeter
Mode	EE
Test point	TU101 pin23
Specification	2.5±0.5V

F-10ch, Input level 70dBμ
While selecting channel input TEST MODE(press once on TEST KEY R/C) and select F-10ch.
(Just Tuning)

F-4ch, Input level 70dBμ
While selecting channel input TEST MODE(press once on TEST KEY R/C) and select F-4ch.
(Just Tuning)

ADJUSTMENT OF Receiv e Image CH

Mode	EE

Confirm that there is no noise and beat in the receiving strenght and weakness electrics signal.

TIMER Circuit ADJUSTMENT

ADJUSTMENT OF Timer Initial JP and Y/C Rec Current Confirmation

Measuring instrument	Monitor Screen
Mode	EE
Specification	< On Screen Display> Jumper List On Screen Display confirm Display Reference

1. During EE mode, send the TEST Code (R/C code 47H) to VCR and hold the Test code, do not let go.
2. While sending the TEST code, the monitor screen will display the initial JP and Y/C Rec Current setting, Video mode and ROM Version condition.

Display eg:

JP : 0 0 3 4 3 0 0 0 1 4

HEX CODE for Initial Jumper

YC : 34 34 07 07

PAL SP | PAL LP/EP | NTSC SP | NTSC EP

VM : F8FB←Video Mode

NOR_ _ ← ROM Version

3. After confirmation, Release the TEST code (R/C code 47H), display will return to EE mode.

Power Circuit ADJUSTMENT

ADJUSTMENT OF Output Voltage Confirm

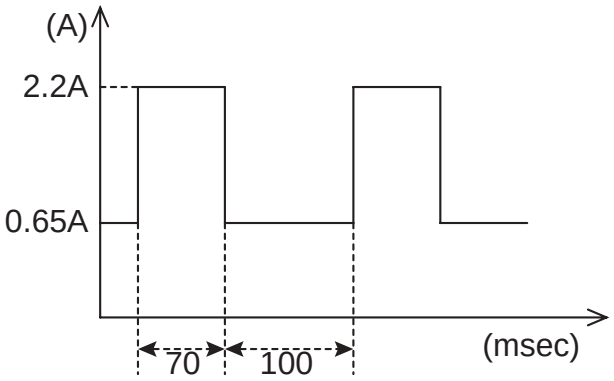
Measuring instrument	Digital Voltmeter		
Item	Test point	Specification	Fix Load
AT 12V	AT between 12Vline~GND	DC 12.5V±0.3V	360mA+ actual load
AT 5V	AT between 5Vline~GND	DC 5.25V±0.1V	18mA+ actual load
AT 39V	AT between 39Vline~GND	DC 39.0V±2.0V	actual load
AT 25.0V	AT between 25.5Vline~GND	DC 25.0V±0.5V	actual load

< Setting Condition>
1. Power Supply : AC190V(50Hz)
2. SURROUND temperature Setting : 20ºC±10ºC
3. load connect place : between AT 5V→AC connector ⑧PIN~AC connector①PIN
   (High speed) : between AT25.5V→AC⑤PIN~AC②PIN
   (Other model) : between AT12V→AC⑤PIN~AC②PIN

ADJUSTMENT OF Ov er Load Characteristic Confirmation

Measuring instrument	Osiloscope		
Item	Test point	Specification	Fix Load
AT 12V	AT between 12Vline~GND	Output above 11.0V	2.0~2.2A(over load)
AT 25.0V	AT between 25.5Vline~GND	Output above 25.0V	

when apply the over load at the AT12V/AT25.5V output for every 170msec, confirm that the output is 11.0V/25.0V for every time.



ADJUSTMENT OF Power Consumption Confirmation

Measuring instrument	Power Consumption device
Mode	Power off
Fix Load	actual load
Test point	AC Plug
Specification	3.0W MAX

1.Power supply : AC230V(50Hz)
2.Surround Temperature Setting : 20ºC±10ºC

IGR(MPX) Circuit ADJUSTMENT

ADJUSTMENT OF Separation Confirmation

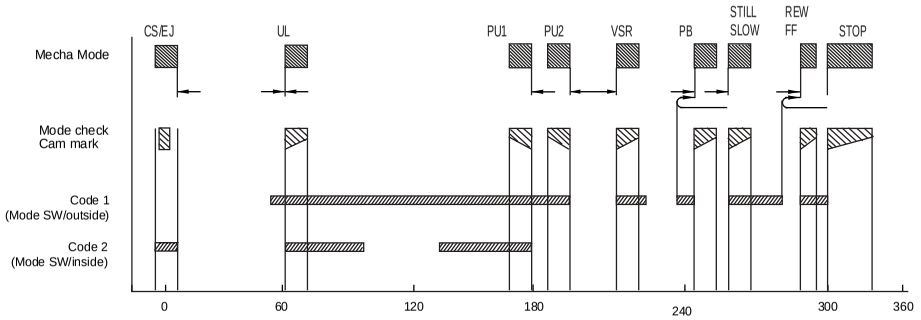
Test point	RCA AUDIO OUT
Specification	R-Lch more than 30dB

1. Receive the IGR Bilingual Broadcasting (STEREO).
   (Signal content L-ch ±0kHZ dev)
   (Signal content R-ch 400Hz 0±50kHz dev)
2. Connect the RCA AUDIO out put L-ch to Voltmeter.
   (weight : flat)

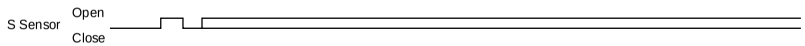
6. MECHANISM OPERATION FLOWCHART AND TROUBLESHOOTING GUIDE

MECHANISM OPERATION FLOWCHART

* This flowchart describes the outline of the mechanism' s operation, but does not give its details.

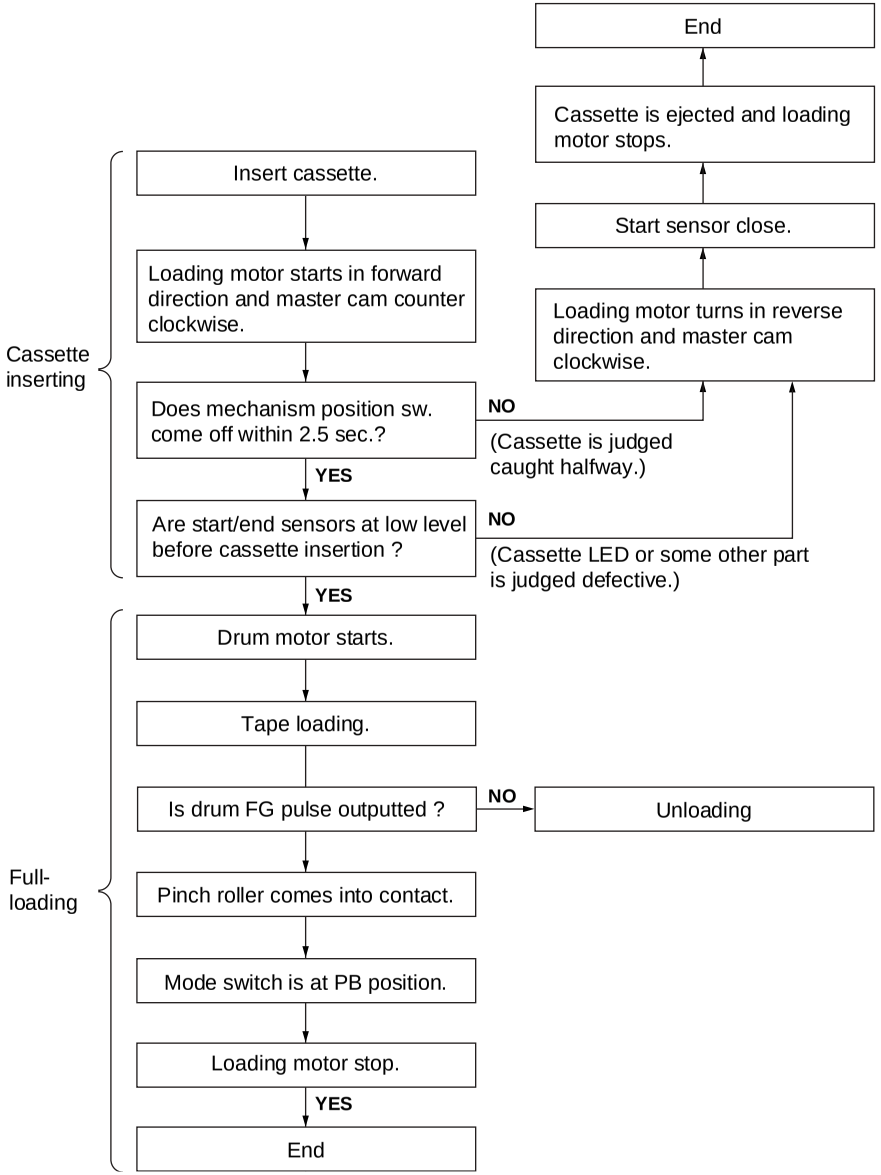


	EJ					UL				PU		PU2		VSR			PB	SLW			FF	STP	
Code 1	0	0	0	0	0	1	1	1	1	1	1	1	0	1	1	0	1	0	0	1	1	0	1	1	0
Code 2	1	1	0	0	0	0	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S Sensor	1	1	0	1	1 or 0																				

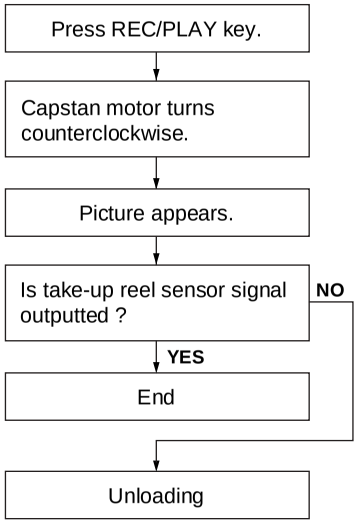


Mecha Mode	Code 2 (Mode SW/inside)	Code 1 (Mode SW/outside)
CS/EJ	1	0
ULD	1	1
PU1	1	1
PU2	0	1
VSR	0	1
PB	0	0
SLOW	0	1
FF	0	1
STOP	0	0

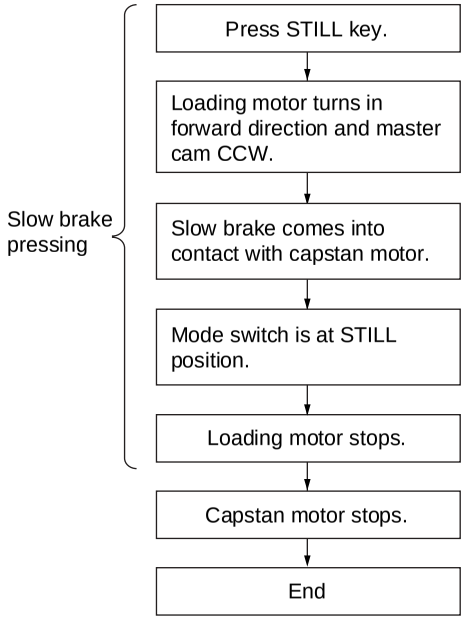
CASSETTE INSERTION → STOP


Cassette inserting
Insert cassette.
Loading motor starts in forward direction and master cam counter clockwise.
Does mechanism position sw. come off within 2.5 sec.?
NO
(Cassette is judged caught halfway.)
YES
Are start/end sensors at low level before cassette insertion ?
NO
(Cassette LED or some other part is judged defective.)
YES
Full-loading
Drum motor starts.
Tape loading.
Is drum FG pulse outputted ?
NO
Unloading
Pinch roller comes into contact.
Mode switch is at PB position.
Loading motor stop.
YES
End
Loading motor turns in reverse direction and master cam clockwise.
Start sensor close.
Cassette is ejected and loading motor stops.
End

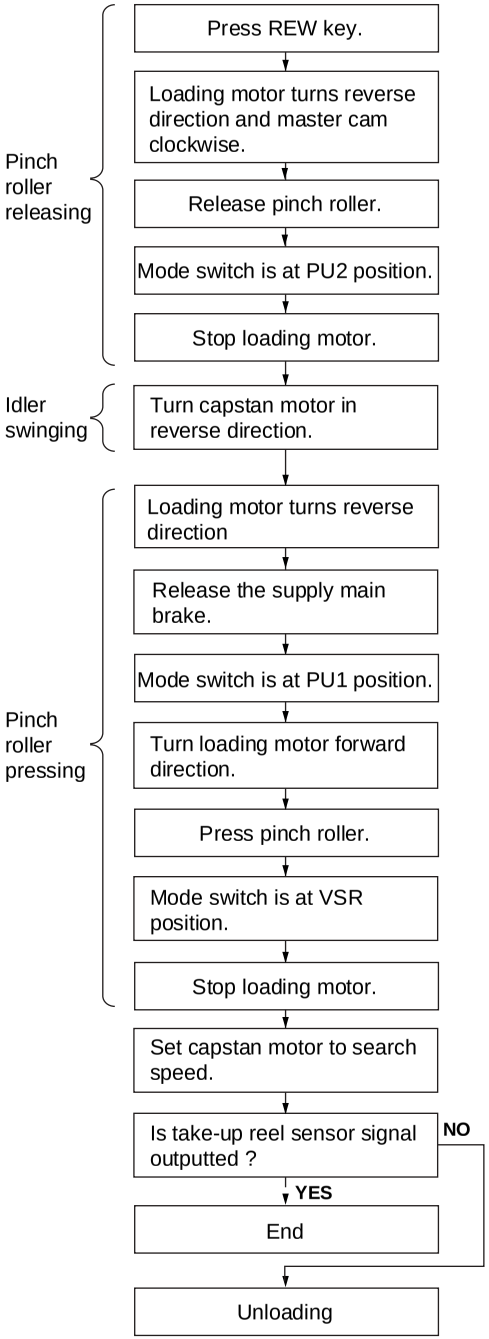
STOP → REC/PLAY



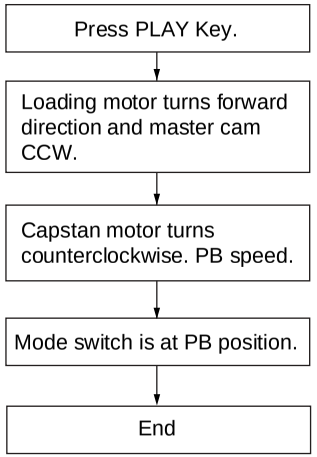
PLAY → STILL


Slow brake pressing
Press STILL key.
Loading motor turns in forward direction and master cam CCW.
Slow brake comes into contact with capstan motor.
Mode switch is at STILL position.
Loading motor stops.
Capstan motor stops.
End

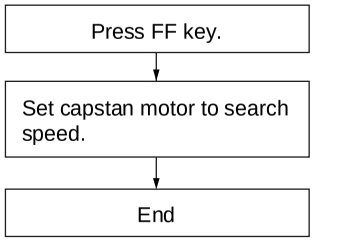
PLAY → VSR


Pinch roller releasing
Press REW key.
Loading motor turns reverse direction and master cam clockwise.
Release pinch roller.
Mode switch is at PU2 position.
Stop loading motor.
Idler swinging
Turn capstan motor in reverse direction.
Pinch roller pressing
Loading motor turns reverse direction
Release the supply main brake.
Mode switch is at PU1 position.
Turn loading motor forward direction.
Press pinch roller.
Mode switch is at VSR position.
Stop loading motor.
Set capstan motor to search speed.
Is take-up reel sensor signal outputted ?
NO
YES
End
Unloading

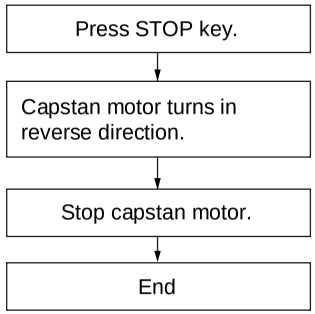
VSR → PLAY


Press PLAY Key.
Loading motor turns forward direction and master cam CCW.
Capstan motor turns counterclockwise. PB speed.
Mode switch is at PB position.
End

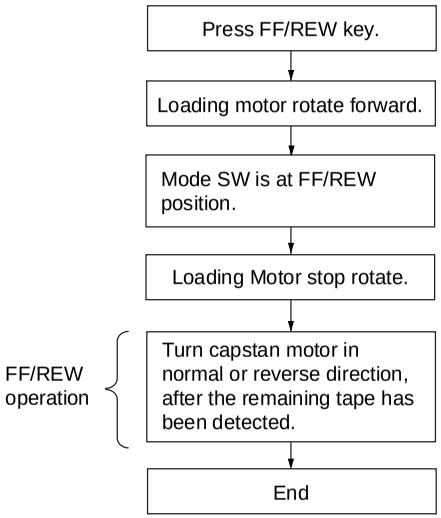
PLAY → VSF



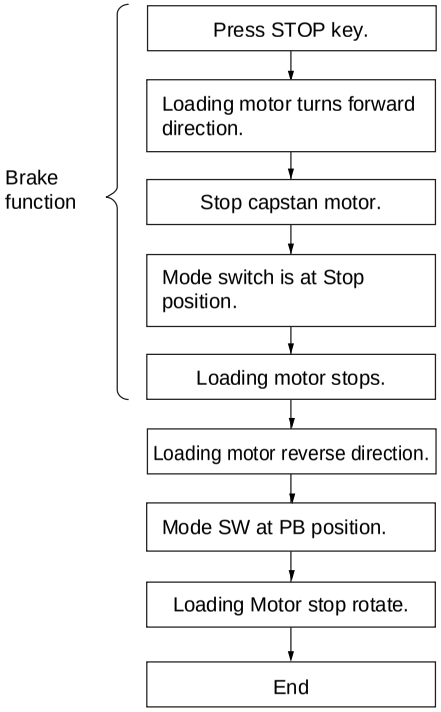
REC/PLAY → STOP



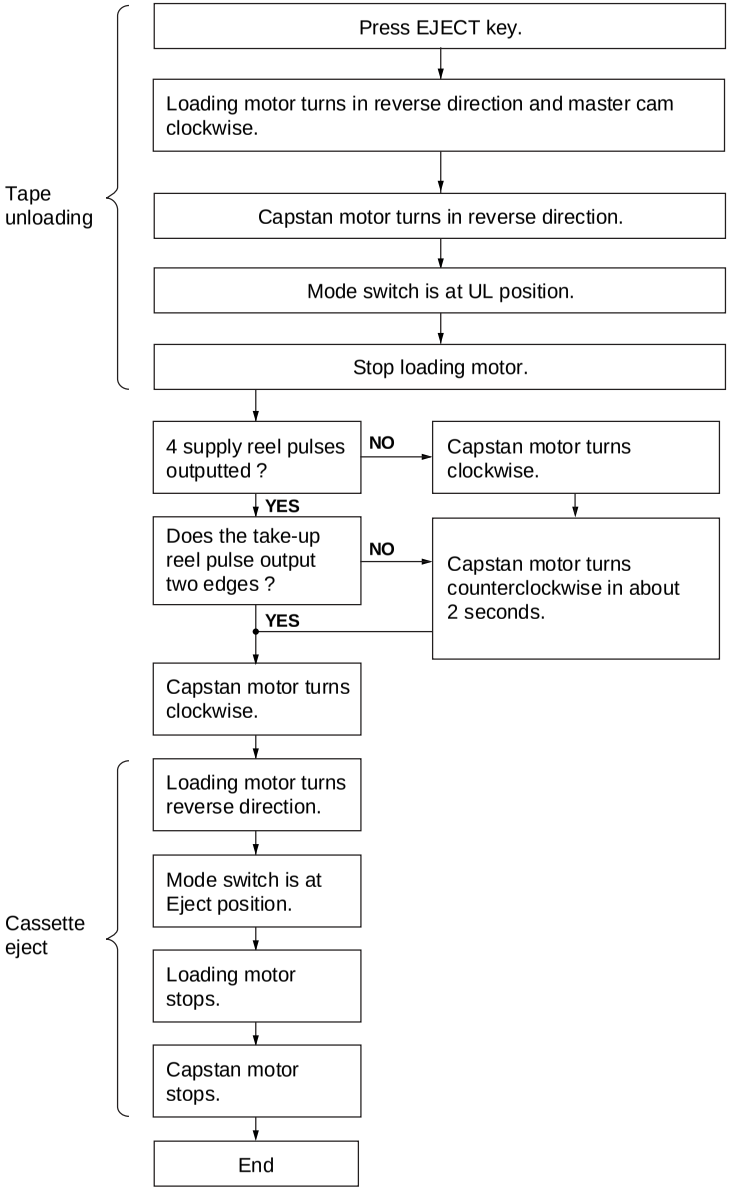
STOP → FF/REW


Press FF/REW key.
Loading motor rotate forward.
Mode SW is at FF/REW position.
Loading Motor stop rotate.
FF/REW operation
Turn capstan motor in normal or reverse direction, after the remaining tape has been detected.
End

FF/REW → STOP

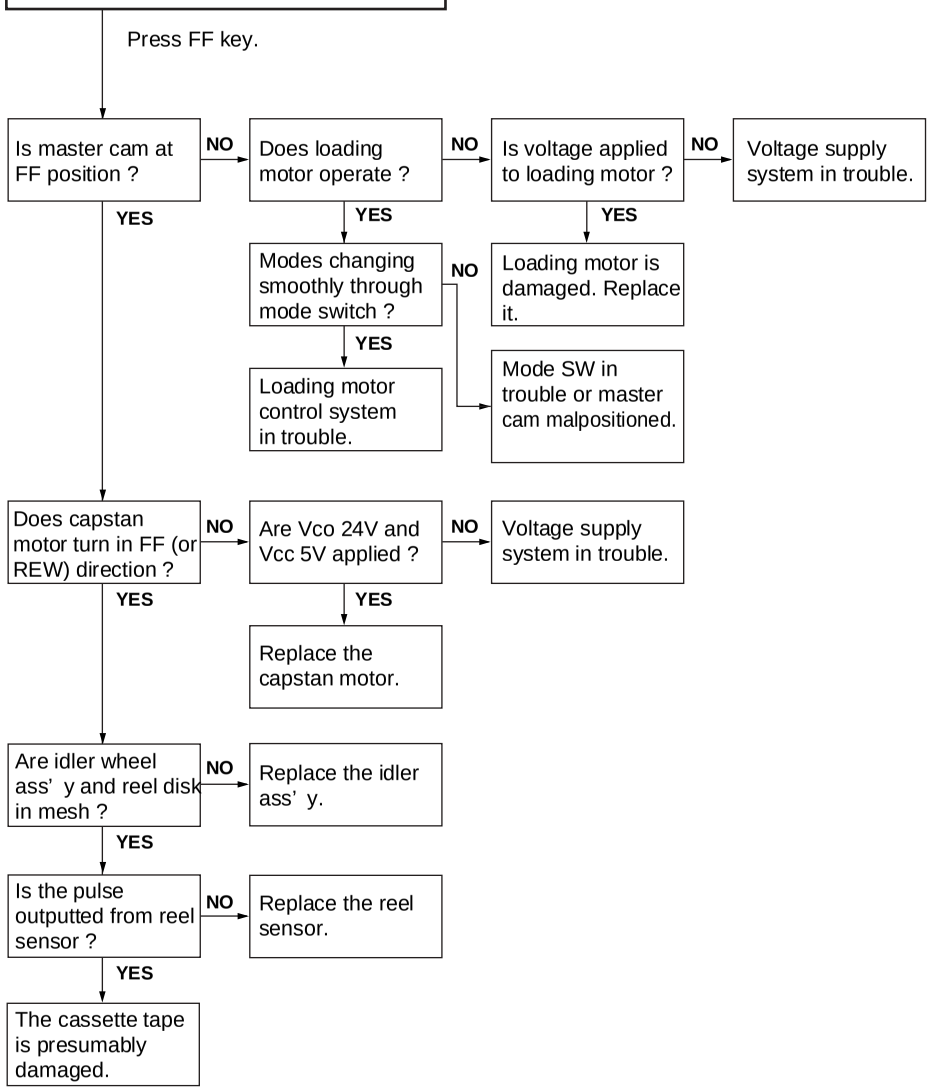


STOP → CASSETTE EJECT

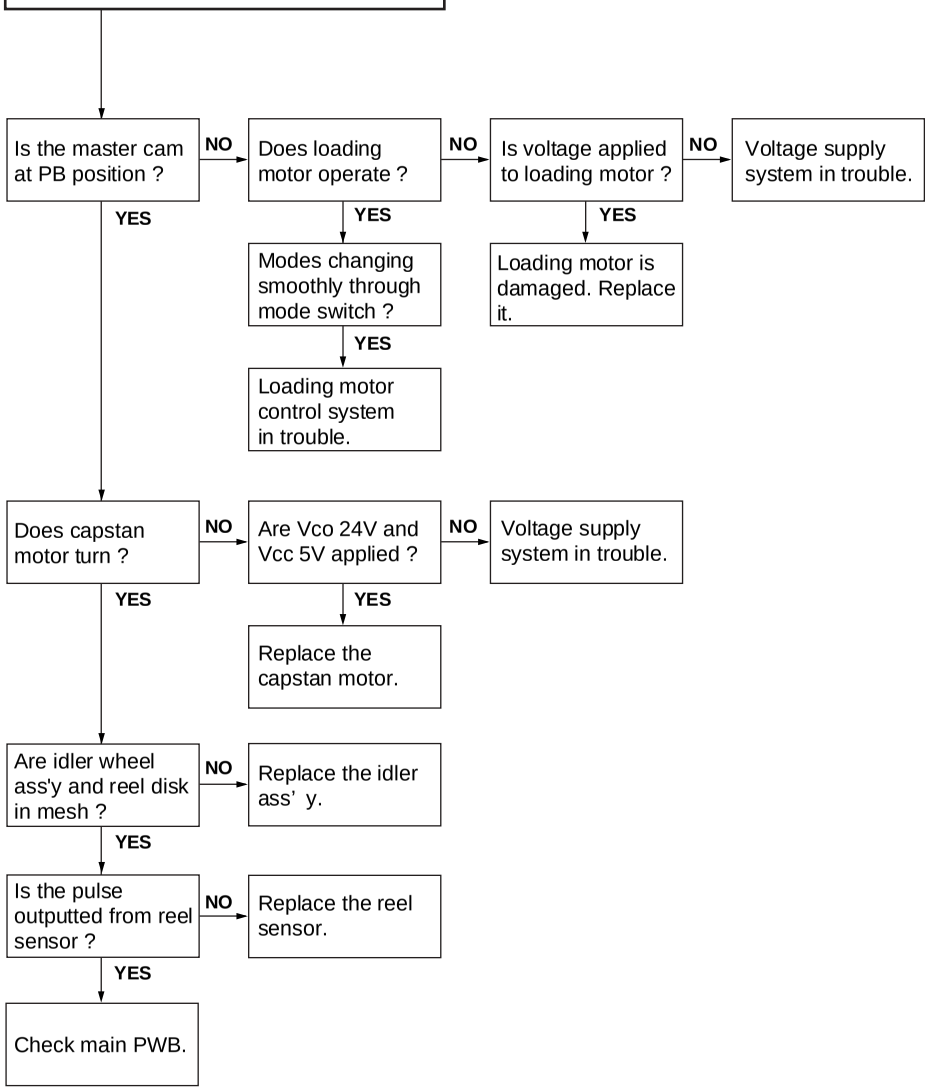

Press EJECT key.
Loading motor turns in reverse direction and master cam clockwise.
Tape unloading
Capstan motor turns in reverse direction.
Mode switch is at UL position.
Stop loading motor.
4 supply reel pulses outputted ?
NO
Capstan motor turns clockwise.
YES
Does the take-up reel pulse output two edges ?
NO
Capstan motor turns counterclockwise in about 2 seconds.
YES
Capstan motor turns clockwise.
Loading motor turns reverse direction.
Cassette eject
Mode switch is at Eject position.
Loading motor stops.
Capstan motor stops.
End

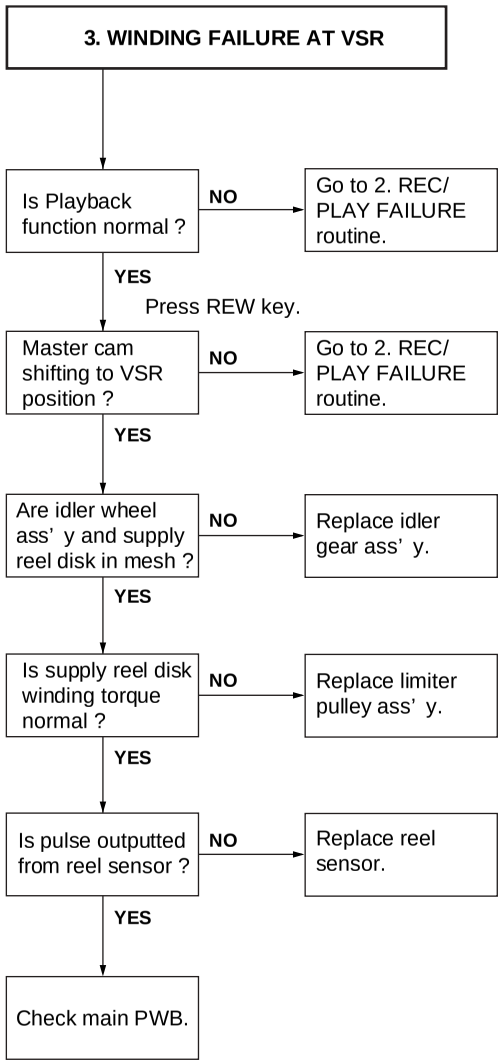
MECHANISM TROUBLESHOOTING

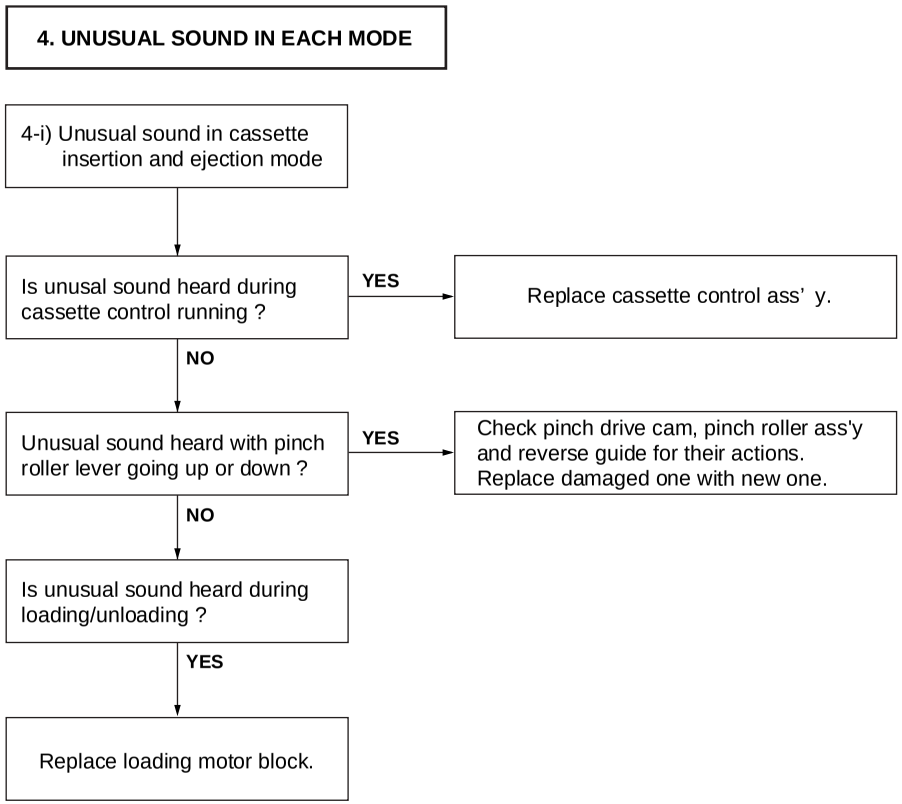
1. FF/REW FAILURE (NO TAPE WINDING)

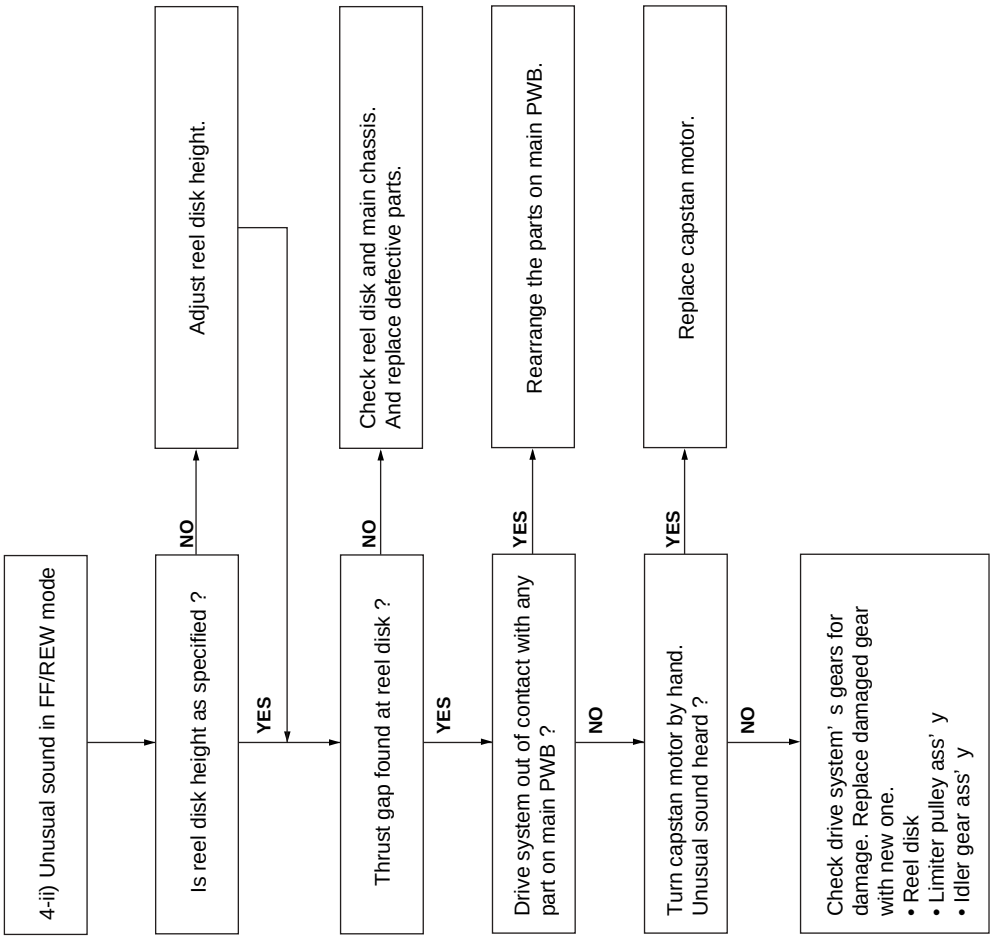


2. REC/PLAY FAILURE (MODE RELEASE)



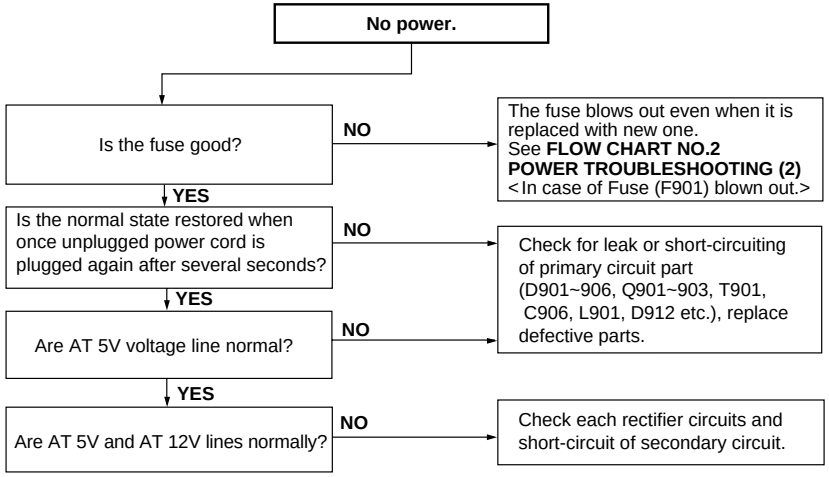

3. WINDING FAILURE AT VSR
Is Playback function normal ?
NO
Go to 2. REC/ PLAY FAILURE routine.
YES
Press REW key.
Master cam shifting to VSR position ?
NO
Go to 2. REC/ PLAY FAILURE routine.
YES
Are idler wheel ass' y and supply reel disk in mesh ?
NO
Replace idler gear ass' y.
YES
Is supply reel disk winding torque normal ?
NO
Replace limiter pulley ass' y.
YES
Is pulse outputted from reel sensor ?
NO
Replace reel sensor.
YES
Check main PWB.


4. UNUSUAL SOUND IN EACH MODE
4-i) Unusual sound in cassette insertion and ejection mode
Is unusal sound heard during cassette control running ?
YES
Replace cassette control ass' y.
NO
Unusual sound heard with pinch roller lever going up or down ?
YES
Check pinch drive cam, pinch roller ass'y and reverse guide for their actions. Replace damaged one with new one.
NO
Is unusual sound heard during loading/unloading ?
YES
Replace loading motor block.

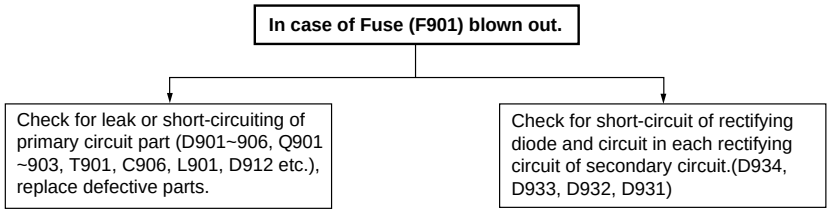

4-ii) Unusual sound in FF/REW mode
Is reel disk height as specified ?
NO
Adjust reel disk height.
YES
Thrust gap found at reel disk ?
NO
Check reel disk and main chassis.
And replace defective parts.
YES
Drive system out of contact with any part on main PWB ?
YES
Rearrange the parts on main PWB.
NO
Turn capstan motor by hand.
Unusual sound heard ?
YES
Replace capstan motor.
NO
Check drive system' s gears for damage. Replace damaged gear with new one.
• Reel disk
• Limiter pulley ass' y
• Idler gear ass' y

7. ELECTRICAL TROUBLESHOOTING

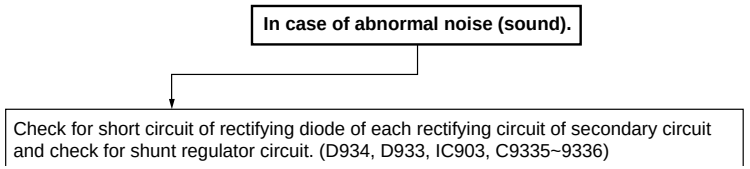
FLOW CHART NO.1 POWER TROUBLESHOOTING(1)


No power.
Is the fuse good?
NO
The fuse blows out even when it is replaced with new one.
See FLOW CHART NO.2 POWER TROUBLESHOOTING (2)
<In case of Fuse (F901) blown out.>
YES
Is the normal state restored when once unplugged power cord is plugged again after several seconds?
NO
Check for leak or short-circuiting of primary circuit part (D901~906, Q901~903, T901, C906, L901, D912 etc.), replace defective parts.
YES
Are AT 5V voltage line normal?
NO
YES
Are AT 5V and AT 12V lines normally?
NO
Check each rectifier circuits and short-circuit of secondary circuit.

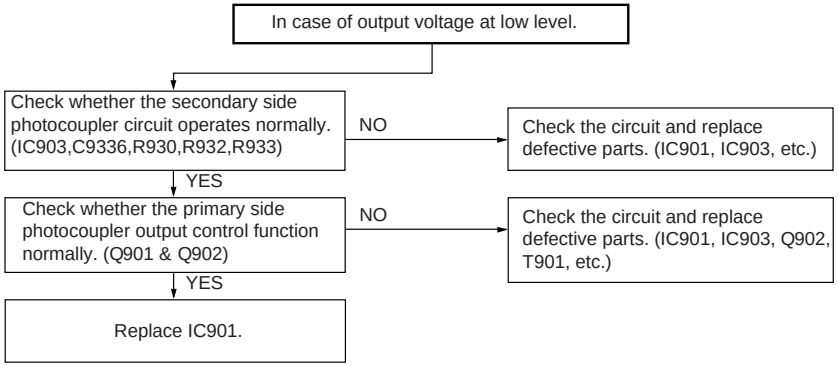
FLOW CHART NO.2 POWER TROUBLESHOOTING(2)


In case of Fuse (F901) blown out.
Check for leak or short-circuiting of primary circuit part (D901~906, Q901 ~903, T901, C906, L901, D912 etc.), replace defective parts.
Check for short-circuit of rectifying diode and circuit in each rectifying circuit of secondary circuit.(D934, D933, D932, D931)

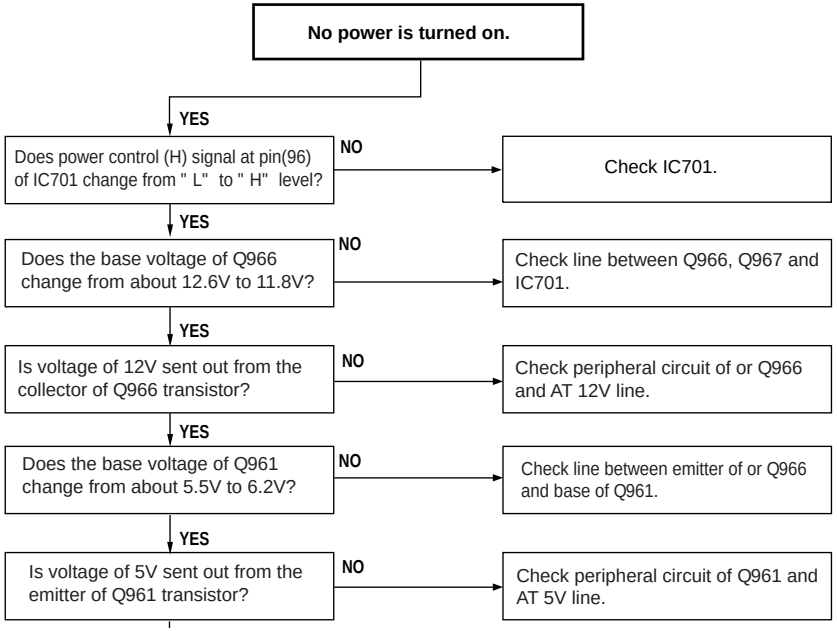
FLOW CHART NO.3 POWER TROUBLESHOOTING(3)


In case of abnormal noise (sound).
Check for short circuit of rectifying diode of each rectifying circuit of secondary circuit and check for shunt regulator circuit. (D934, D933, IC903, C9335~9336)

FLOW CHART NO.4 POWER TROUBLESHOOTING(4)


In case of output voltage at low level.
Check whether the secondary side photocoupler circuit operates normally. (IC903,C9336,R930,R932,R933)
NO
Check the circuit and replace defective parts. (IC901, IC903, etc.)
YES
Check whether the primary side photocoupler output control function normally. (Q901 & Q902)
NO
Check the circuit and replace defective parts. (IC901, IC903, Q902, T901, etc.)
YES
Replace IC901.

FLOW CHART NO.5 SYSTEM CONTROL TROUBLESHOOTING


No power is turned on.
YES
Does power control (H) signal at pin(96) of IC701 change from " L" to " H" level?
NO
Check IC701.
YES
Does the base voltage of Q966 change from about 12.6V to 11.8V?
NO
Check line between Q966, Q967 and IC701.
YES
Is voltage of 12V sent out from the collector of Q966 transistor?
NO
Check peripheral circuit of or Q966 and AT 12V line.
YES
Does the base voltage of Q961 change from about 5.5V to 6.2V?
NO
Check line between emitter of or Q966 and base of Q961.
YES
Is voltage of 5V sent out from the emitter of Q961 transistor?
NO
Check peripheral circuit of Q961 and AT 5V line.

FLOW CHART NO.6 POWER TROUBLESHOOTING(6)

In case of output voltage at low level.

Check peripheral circuits IC901, IC903, C9336, R932, R930 and R933. **NO** → The result of IC901, IC903, C9336, R932,R930 and R931. Replace where necessary.

YES

Check C901 and peripheral circuits of IC901. **NO** → Replace IC901.

YES

Check short-circuit or leak of T901. **NO** → Replace T901.

YES

Check primary circuit and peripheral circuit of Q901 and Q902.

FLOW CHART NO.7 KEY CONTROL TROUBLESHOOTING(2)

Key-in input is not received <Except for jog shuttle mode>

Does the key switch make good contact, when the cassette tape is inserted? **NO** → Check switch contact.

YES

Is there the function control voltage inputted at the pins(88) and (89) of IC701, when the keys are activated? **NO** → Check peripheral circuit of pins(88) and (89) of IC701, and the function keys.

YES

Replace IC701.

SWITC Ref No.	FUNCTION	SWITC Ref No.	FUNCTION	TERMINAL VOLTAGE
S805	SET	S801	POWER	0.000V
S806	CH(+)	S802	EJECT	0.652V
S807	TAPE SPEED / PAUSE	S803	MENU	1.250V / 1.864V
S808	PAUSE / REC	S804	CH(-)	1.864V / 2.561V
S883	REC / NO USE	S881	PLAY	
S884/S885	REW	S882	STOP	3.081V
S886/S887	FF	TP801	TEST	3.694V
-	-	TP802	CASSETTE	4.279V
-	-	-	-	5.000V
KEY-1 IN (Pin88 of IC701)		KEY-0 IN (Pin89 of IC701)		

FLOW CHART NO.8 INFRARED R/C TROUBLESHOOTING

No operation is possible from the infrared remote control.

Does the infrared remote control function? **NO** → Replace infrared remote control as required.

YES

Is the supply voltage of 5V fed to pin(2) of RMC801? **NO** → Check AT 5V and GND lines.

YES

Is " L" pulse sent out from pin(1) of the receiver when the infrared remote control is activated? **NO** → Replace receiver.

YES

Check between at pin(1) of receiver and all the way up through to pin (4) of IC701. **NO** → Replace IC701.

FLOW CHART NO.9 CASSETTE CONTROL TROUBLESHOOTING(1)

A cassette tape is not take in.

Is the cassette housing distorted? **NO** → Fix or replace the cassette housing.

YES

Does the start sensor cover go to open when the cassette tape is inserted? **NO** → Check start sensor cover.

YES

Does pin(87) of IC701 change from" H" to " L" level when the cassette tape is inserted? **NO** → Check line between start sensor and pin (87) of IC701

YES

Does pin(10) of P701 go to a " H" level when the cassette tape is inserted? **NO** → Check line between pin (92) of IC701 and pin(10) of P701.

YES

Is the supply voltage of 12V fed to pin (8) of P701? **NO** → Check M 12V lines.

YES

Check IC on mechanism. **NO** →

Does IC on mechanism output to about 10V when the cassette tape in inserted?

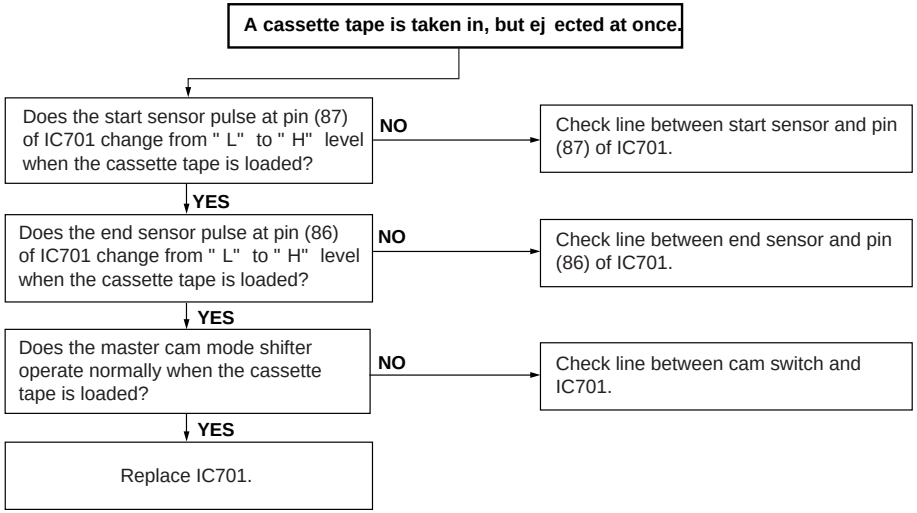
YES

Is the specified voltage applied at the loading motor terminal when the cassette tape is inserted? **NO** → Check line between IC on mechanis and loading motor.

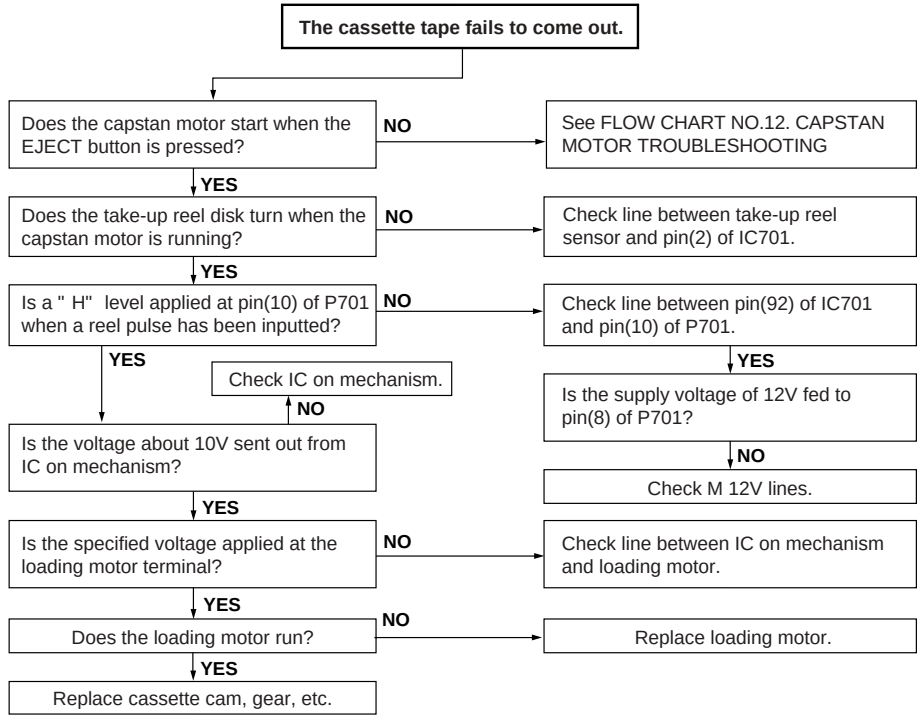
YES

Replace loading motor.

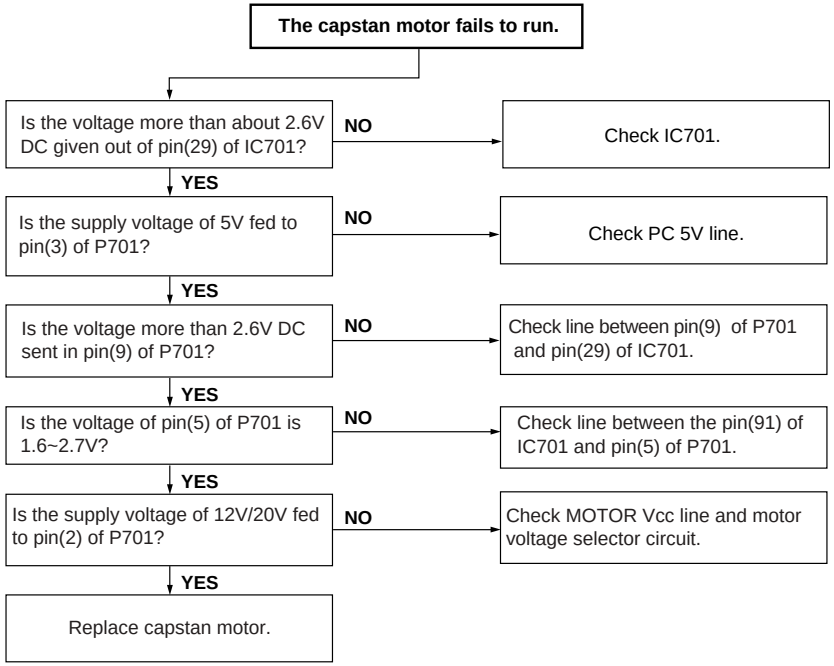
FLOW CHART NO.10 CASSETTE CONTROL TROUBLESHOOTING(2)


A cassette tape is taken in, but ej ected at once.
Does the start sensor pulse at pin (87) of IC701 change from " L" to " H" level when the cassette tape is loaded?
NO
Check line between start sensor and pin (87) of IC701.
YES
Does the end sensor pulse at pin (86) of IC701 change from " L" to " H" level when the cassette tape is loaded?
NO
Check line between end sensor and pin (86) of IC701.
YES
Does the master cam mode shifter operate normally when the cassette tape is loaded?
NO
Check line between cam switch and IC701.
YES
Replace IC701.

FLOW CHART NO.11 LOADING MOTOR AND EJECT TROUBLESHOOTING


The cassette tape fails to come out.
Does the capstan motor start when the EJECT button is pressed?
NO
See FLOW CHART NO.12. CAPSTAN MOTOR TROUBLESHOOTING
YES
Does the take-up reel disk turn when the capstan motor is running?
NO
Check line between take-up reel sensor and pin(2) of IC701.
YES
Is a " H" level applied at pin(10) of P701 when a reel pulse has been inputted?
NO
Check line between pin(92) of IC701 and pin(10) of P701.
YES
Check IC on mechanism.
NO
Is the voltage about 10V sent out from IC on mechanism?
YES
Is the specified voltage applied at the loading motor terminal?
NO
Check line between IC on mechanism and loading motor.
YES
Does the loading motor run?
NO
Replace loading motor.
YES
Replace cassette cam, gear, etc.
YES
Is the supply voltage of 12V fed to pin(8) of P701?
NO
Check M 12V lines.

FLOW CHART NO.12 CAPSTAN MOTOR TROUBLESHOOTING


The capstan motor fails to run.
Is the voltage more than about 2.6V DC given out of pin(29) of IC701?
NO
Check IC701.
YES
Is the supply voltage of 5V fed to pin(3) of P701?
NO
Check PC 5V line.
YES
Is the voltage more than 2.6V DC sent in pin(9) of P701?
NO
Check line between pin(9) of P701 and pin(29) of IC701.
YES
Is the voltage of pin(5) of P701 is 1.6~2.7V?
NO
Check line between the pin(91) of IC701 and pin(5) of P701.
YES
Is the supply voltage of 12V/20V fed to pin(2) of P701?
NO
Check MOTOR Vcc line and motor voltage selector circuit.
YES
Replace capstan motor.

FLOW CHART NO.13 TIMER TROUBLESHOOTING

The LCD display fails to light up.

- Is the supply voltage of 5V fed to pin(37) of IC8001? **NO** → Check AT 5V line.
- **YES**
- Is the supply voltage of 3.4V, 1.7V feed to pin(38) and pin(39) of IC8001? **NO** → Check pin(38), (39) of IC8001 and peripheral circuits.
- **YES**
- Is it possible to confirm signals LCD RESET, LCD CS, LCD CLOCK and LCD DATA on the pins(36), (42), (43) and (44) of IC8001? **NO** → Check the signal line between IC701 and IC8001.
- **YES**
- Is the OSC signal at pin(41) of IC8001 present? **NO** → Check peripheral circuit of pin(41) of IC8001.
- **YES**
- Are the segment signals supplied to the LCD display (LC8001) fromthe driver IC (IC8001)? **NO** → Replace IC8001.
- **YES**
- Check that the LCD display is free from damages such as crack.

FLOW CHART NO.14 DRUM MOTOR TROUBLESHOOTING(1)

The drum motor fails to run.

- Is the voltage more than about 2.6V DC given out of pin(30) of IC701? **NO** → Check IC701.
- **YES**
- Is the voltage more than about 2.6V DC given out of pin(12) of P701? **NO** → Check line between pin(30) of IC701 and pin(12) of P701.
- **YES**
- Is the supply voltage of 12V fed to pin(8) of P701? **NO** → Check M 12V line.
- **YES**
- Replace drum motor.

FLOW CHART NO.15 DRUM MOTOR TROUBLESHOOTING(2)

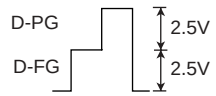
The drum motor runs only for a few seconds.

- Is drum PG signal given out from the pin (11) of P701? **NO** → Check peripheral circuit of IC on mechanism **NO** → Replace IC on mechanism.
- **YES** → Check drum motor.
- Is drum PG signal fed to pin(65) of IC701? **NO** → Check line between pin(11) of P701 and pin(65) of IC701.
- **YES**
- Is head switching pulse sent out from the pin(23) of IC701? **NO** → Check IC701.
- **YES**
- Replace IC701.

FLOW CHART NO.16 HEAD SWITCHING PULSE TROUBLESHOOTING.

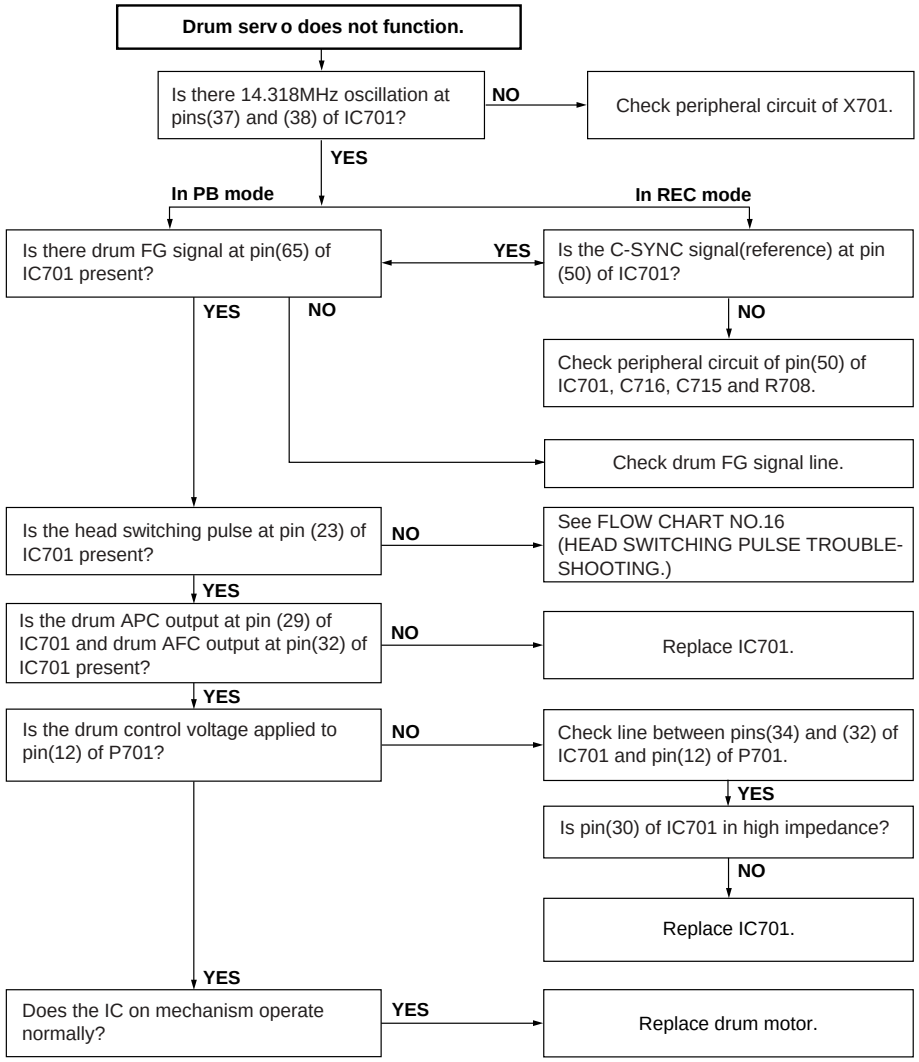
No head switching pulse.

- Is the drum motor rotating? **NO** → See FLOW CHART NO.14, 15 (DRUM MOTOR TROUBLESHOOTING(1), (2))
- **YES**
- Is the drum PG signal and drum FG signal present at pin(65) of IC701? **YES** → Replace IC701.
- **NO**

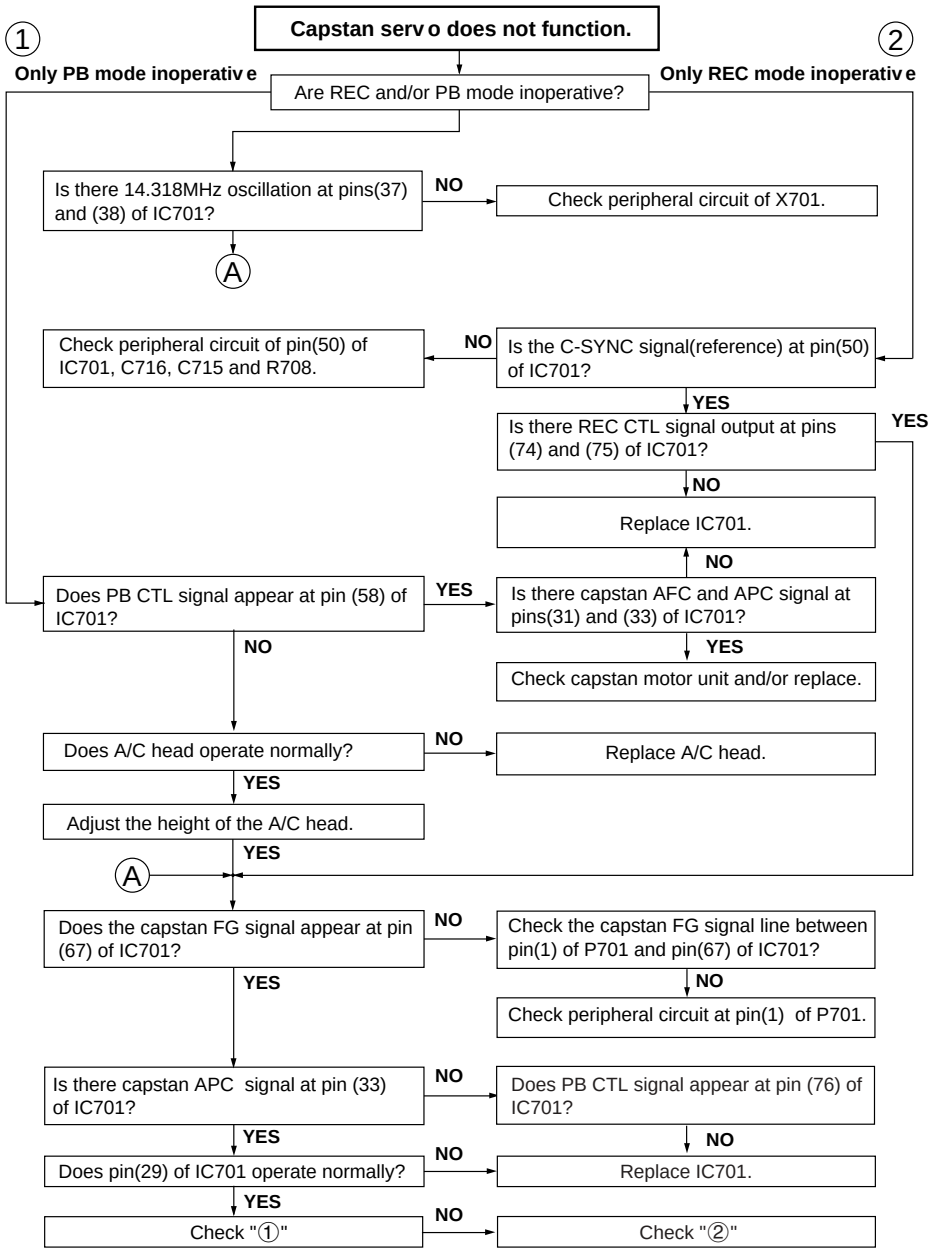


- Are the drum PG signal and drum FG signal present on pin(11) of P701? **YES** → Check line between P701 and IC701.
- **NO**
- Check peripheral circuit of IC on mechanism.

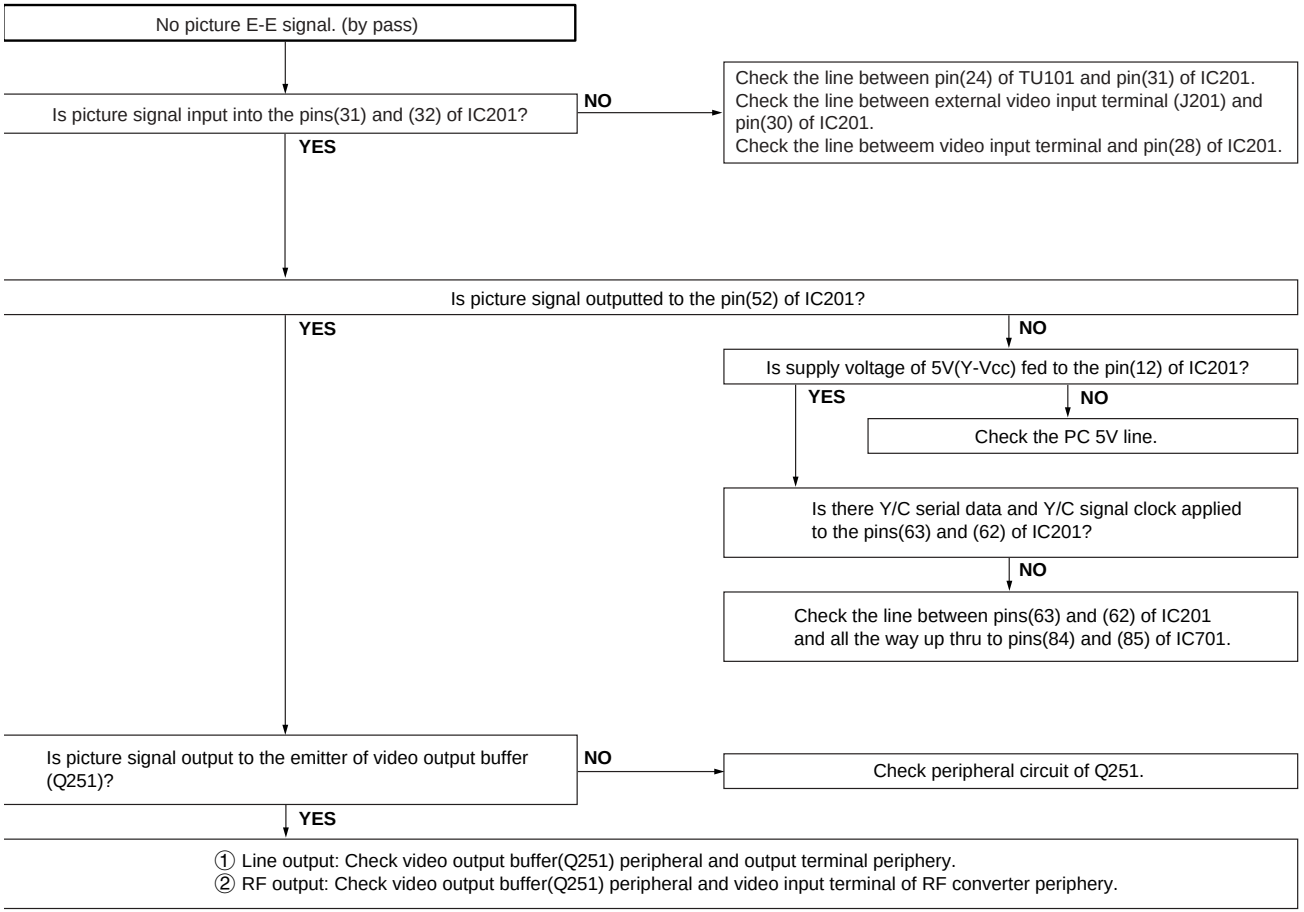
FLOW CHART NO.17 DRUM SERVO TROUBLESHOOTING


Drum servo does not function.
Is there 14.318MHz oscillation at pins(37) and (38) of IC701?
NO
Check peripheral circuit of X701.
YES
In PB mode
In REC mode
Is there drum FG signal at pin(65) of IC701 present?
YES
Is the C-SYNC signal(reference) at pin (50) of IC701?
YES
NO
NO
Check peripheral circuit of pin(50) of IC701, C716, C715 and R708.
Check drum FG signal line.
Is the head switching pulse at pin (23) of IC701 present?
NO
See FLOW CHART NO.16 (HEAD SWITCHING PULSE TROUBLE-SHOOTING.)
YES
Is the drum APC output at pin (29) of IC701 and drum AFC output at pin(32) of IC701 present?
NO
Replace IC701.
YES
Is the drum control voltage applied to pin(12) of P701?
NO
Check line between pins(34) and (32) of IC701 and pin(12) of P701.
YES
Is pin(30) of IC701 in high impedance?
NO
Replace IC701.
YES
Does the IC on mechanism operate normally?
YES
Replace drum motor.

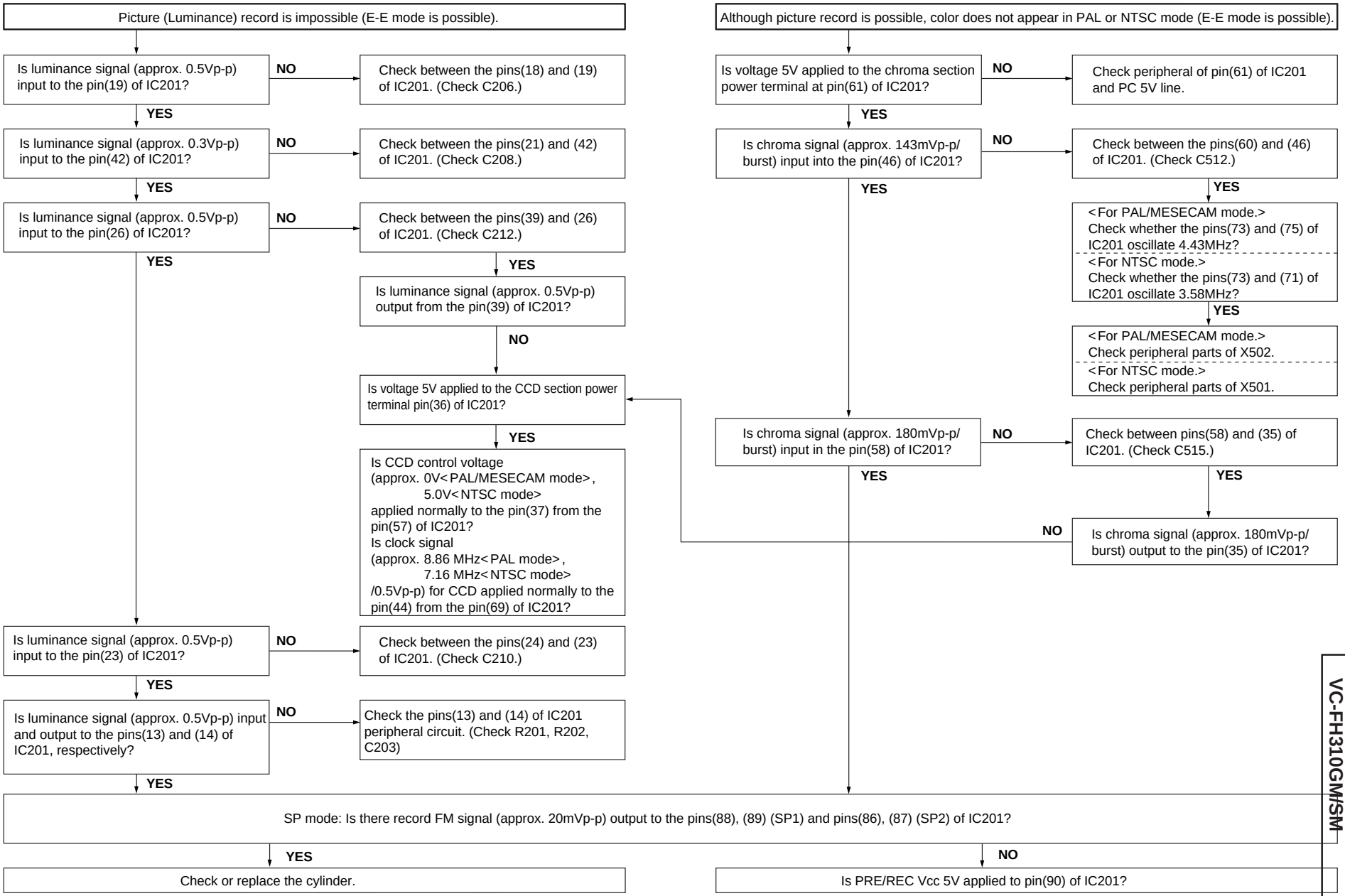
FLOW CHART NO.18 CAPSTAN SERVO TROUBLESHOOTING


Capstan servo does not function.
1
2
Only PB mode inoperative
Only REC mode inoperative
Are REC and/or PB mode inoperative?
Is there 14.318MHz oscillation at pins(37) and (38) of IC701?
NO
Check peripheral circuit of X701.
A
Check peripheral circuit of pin(50) of IC701, C716, C715 and R708.
NO
Is the C-SYNC signal(reference) at pin(50) of IC701?
YES
Is there REC CTL signal output at pins (74) and (75) of IC701?
YES
NO
Replace IC701.
NO
Does PB CTL signal appear at pin (58) of IC701?
YES
Is there capstan AFC and APC signal at pins(31) and (33) of IC701?
NO
YES
Check capstan motor unit and/or replace.
Does A/C head operate normally?
NO
Replace A/C head.
YES
Adjust the height of the A/C head.
YES
A
Does the capstan FG signal appear at pin (67) of IC701?
NO
Check the capstan FG signal line between pin(1) of P701 and pin(67) of IC701?
YES
NO
Check peripheral circuit at pin(1) of P701.
Is there capstan APC signal at pin (33) of IC701?
NO
Does PB CTL signal appear at pin (76) of IC701?
YES
NO
Does pin(29) of IC701 operate normally?
NO
Replace IC701.
YES
Check "①"
NO
Check "②"

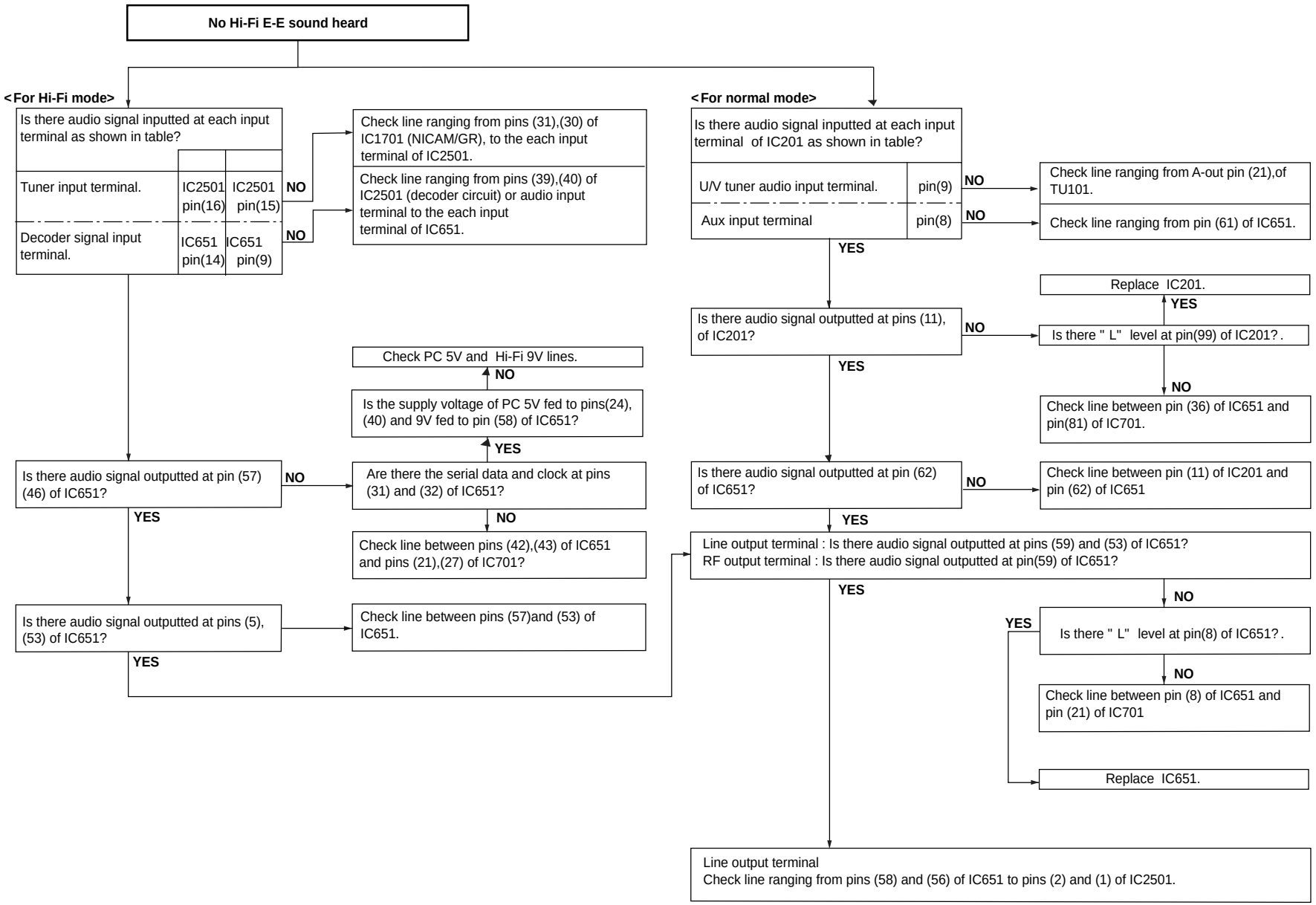
FLOW CHART NO.19 E-E MODE TROUBLESHOOTING


No picture E-E signal. (by pass)
Is picture signal input into the pins(31) and (32) of IC201?
NO
Check the line between pin(24) of TU101 and pin(31) of IC201.
Check the line between external video input terminal (J201) and pin(30) of IC201.
Check the line betweem video input terminal and pin(28) of IC201.
YES
Is picture signal outputted to the pin(52) of IC201?
YES
NO
Is supply voltage of 5V(Y-Vcc) fed to the pin(12) of IC201?
YES
NO
Check the PC 5V line.
Is there Y/C serial data and Y/C signal clock applied to the pins(63) and (62) of IC201?
NO
Check the line between pins(63) and (62) of IC201 and all the way up thru to pins(84) and (85) of IC701.
Is picture signal output to the emitter of video output buffer (Q251)?
NO
Check peripheral circuit of Q251.
YES
① Line output: Check video output buffer(Q251) peripheral and output terminal periphery.
② RF output: Check video output buffer(Q251) peripheral and video input terminal of RF converter periphery.

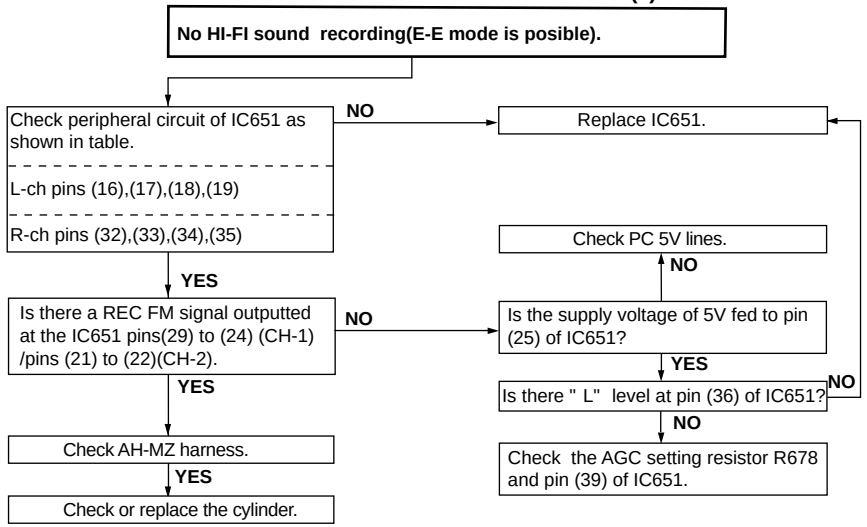
FLOW CHART NO.20 RECORDING MODE TROUBLESHOOTING


Picture (Luminance) record is impossible (E-E mode is possible).
Is luminance signal (approx. 0.5Vp-p) input to the pin(19) of IC201?
NO
Check between the pins(18) and (19) of IC201. (Check C206.)
YES
Is luminance signal (approx. 0.3Vp-p) input to the pin(42) of IC201?
NO
Check between the pins(21) and (42) of IC201. (Check C208.)
YES
Is luminance signal (approx. 0.5Vp-p) input to the pin(26) of IC201?
NO
Check between the pins(39) and (26) of IC201. (Check C212.)
YES
Is luminance signal (approx. 0.5Vp-p) output from the pin(39) of IC201?
NO
Is voltage 5V applied to the CCD section power terminal pin(36) of IC201?
YES
Is CCD control voltage (approx. 0V< PAL/MESECAM mode>, 5.0V< NTSC mode> applied normally to the pin(37) from the pin(57) of IC201?
Is clock signal (approx. 8.86 MHz< PAL mode>, 7.16 MHz< NTSC mode> /0.5Vp-p) for CCD applied normally to the pin(44) from the pin(69) of IC201?
YES
Is luminance signal (approx. 0.5Vp-p) input to the pin(23) of IC201?
NO
Check between the pins(24) and (23) of IC201. (Check C210.)
YES
Is luminance signal (approx. 0.5Vp-p) input and output to the pins(13) and (14) of IC201, respectively?
NO
Check the pins(13) and (14) of IC201 peripheral circuit. (Check R201, R202, C203)
YES
Although picture record is possible, color does not appear in PAL or NTSC mode (E-E mode is possible).
Is voltage 5V applied to the chroma section power terminal at pin(61) of IC201?
NO
Check peripheral of pin(61) of IC201 and PC 5V line.
YES
Is chroma signal (approx. 143mVp-p/ burst) input into the pin(46) of IC201?
NO
Check between the pins(60) and (46) of IC201. (Check C512.)
YES
YES
<For PAL/MESECAM mode.> Check whether the pins(73) and (75) of IC201 oscillate 4.43MHz?
<For NTSC mode.> Check whether the pins(73) and (71) of IC201 oscillate 3.58MHz?
YES
<For PAL/MESECAM mode.> Check peripheral parts of X502.
<For NTSC mode.> Check peripheral parts of X501.
Is chroma signal (approx. 180mVp-p/ burst) input in the pin(58) of IC201?
NO
Check between pins(58) and (35) of IC201. (Check C515.)
YES
YES
NO
Is chroma signal (approx. 180mVp-p/ burst) output to the pin(35) of IC201?
SP mode: Is there record FM signal (approx. 20mVp-p) output to the pins(88), (89) (SP1) and pins(86), (87) (SP2) of IC201?
YES
NO
Check or replace the cylinder.
Is PRE/REC Vcc 5V applied to pin(90) of IC201?

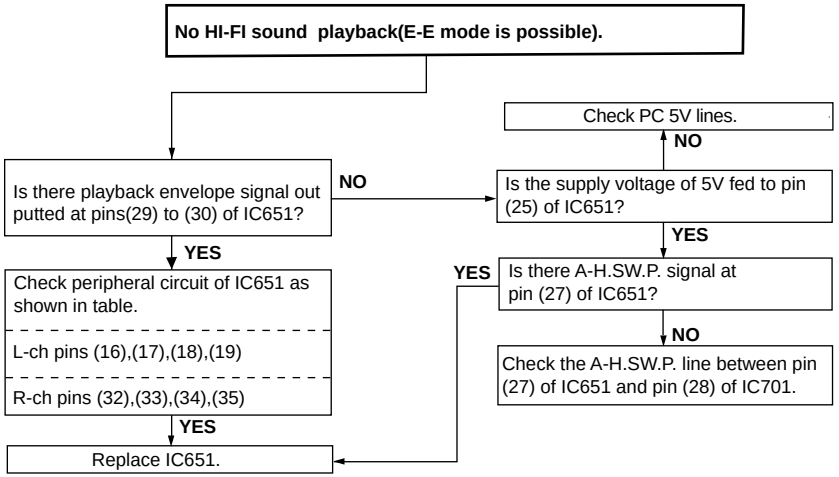
FLOW CHART NO.21 Hi-Fi SOUND MODE TROUBLESHOOTING(1)


No Hi-Fi E-E sound heard
<For Hi-Fi mode>
Is there audio signal inputted at each input terminal as shown in table?
Tuner input terminal.
IC2501 pin(16)
IC2501 pin(15)
Decoder signal input terminal.
IC651 pin(14)
IC651 pin(9)
NO
NO
Check line ranging from pins (31),(30) of IC1701 (NICAM/GR), to the each input terminal of IC2501.
Check line ranging from pins (39),(40) of IC2501 (decoder circuit) or audio input terminal to the each input terminal of IC651.
Is there audio signal outputted at pin (57) (46) of IC651?
NO
YES
Are there the serial data and clock at pins (31) and (32) of IC651?
NO
Check line between pins (42),(43) of IC651 and pins (21),(27) of IC701?
Is the supply voltage of PC 5V fed to pins(24), (40) and 9V fed to pin (58) of IC651?
YES
NO
Check PC 5V and Hi-Fi 9V lines.
Is there audio signal outputted at pins (5), (53) of IC651?
YES
Check line between pins (57)and (53) of IC651.
<For normal mode>
Is there audio signal inputted at each input terminal of IC201 as shown in table?
U/V tuner audio input terminal.
pin(9)
Aux input terminal
pin(8)
NO
NO
Check line ranging from A-out pin (21),of TU101.
Check line ranging from pin (61) of IC651.
YES
Is there audio signal outputted at pins (11), of IC201?
NO
YES
Is there " L" level at pin(99) of IC201? .
YES
NO
Replace IC201.
Check line between pin (36) of IC651 and pin(81) of IC701.
Is there audio signal outputted at pin (62) of IC651?
NO
YES
Check line between pin (11) of IC201 and pin (62) of IC651
Line output terminal : Is there audio signal outputted at pins (59) and (53) of IC651?
RF output terminal : Is there audio signal outputted at pin(59) of IC651?
YES
NO
Is there " L" level at pin(8) of IC651? .
YES
NO
Check line between pin (8) of IC651 and pin (21) of IC701
Replace IC651.
Line output terminal
Check line ranging from pins (58) and (56) of IC651 to pins (2) and (1) of IC2501.

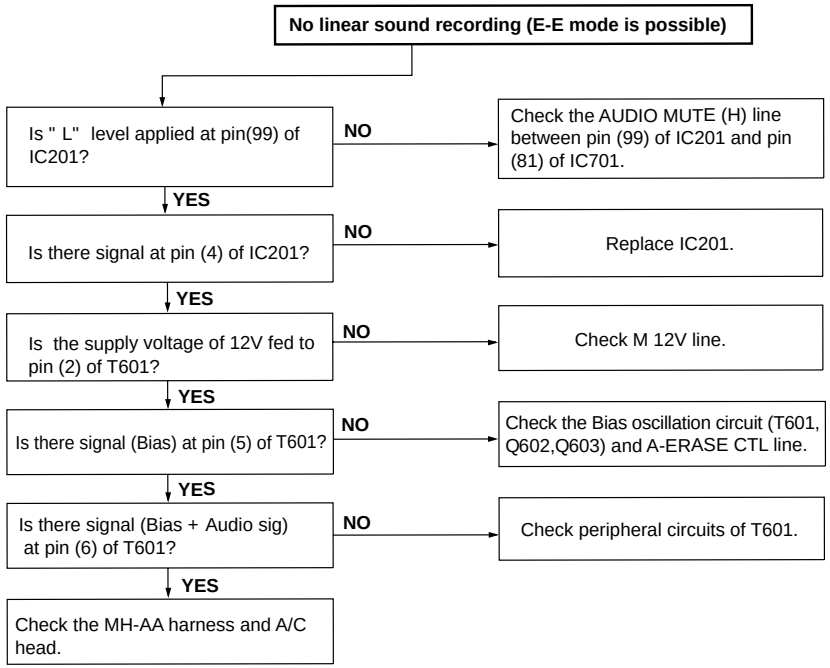
FLOW CHART NO.22 Hi-Fi SOUND MODE TROUBLESHOOTING(2)


No HI-FI sound recording(E-E mode is posible).
Check peripheral circuit of IC651 as shown in table.
L-ch pins (16),(17),(18),(19)
R-ch pins (32),(33),(34),(35)
NO
Replace IC651.
YES
Is there a REC FM signal outputted at the IC651 pins(29) to (24) (CH-1) /pins (21) to (22)(CH-2).
NO
Is the supply voltage of 5V fed to pin (25) of IC651?
Check PC 5V lines.
NO
YES
Is there " L" level at pin (36) of IC651?
NO
YES
Check AH-MZ harness.
Check the AGC setting resistor R678 and pin (39) of IC651.
YES
Check or replace the cylinder.

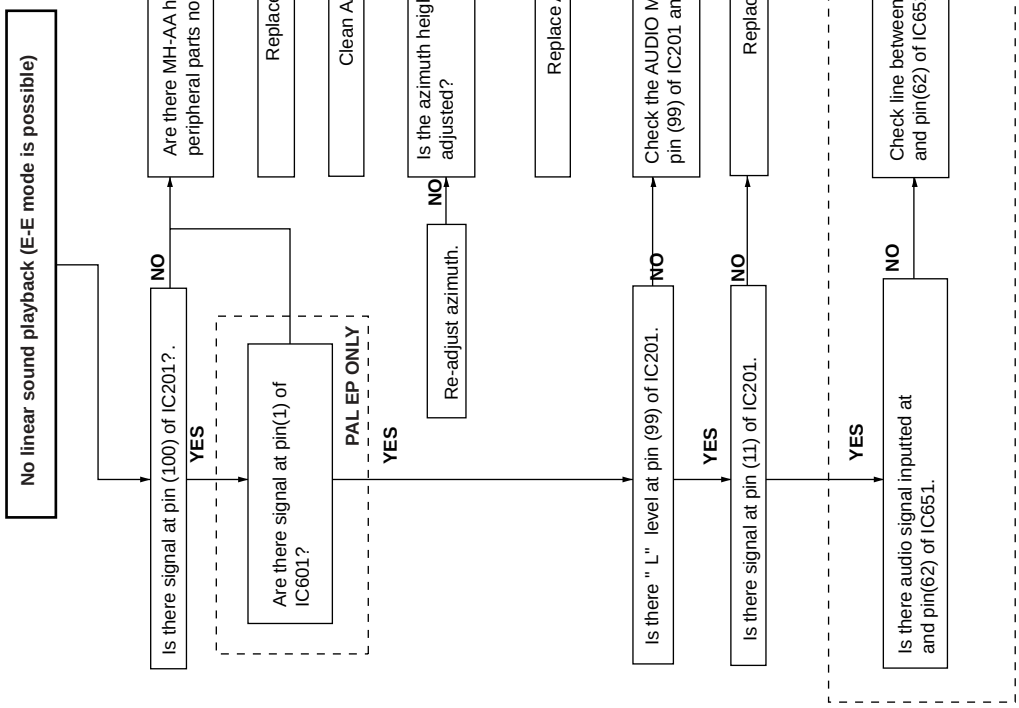
FLOW CHART NO.23 Hi-Fi SOUND MODE TROUBLESHOOTING(3)


No HI-FI sound playback(E-E mode is possible).
Check PC 5V lines.
NO
Is there playback envelope signal out putted at pins(29) to (30) of IC651?
NO
Is the supply voltage of 5V fed to pin (25) of IC651?
YES
YES
Check peripheral circuit of IC651 as shown in table.
L-ch pins (16),(17),(18),(19)
R-ch pins (32),(33),(34),(35)
YES
Is there A-H.SW.P. signal at pin (27) of IC651?
NO
Check the A-H.SW.P. line between pin (27) of IC651 and pin (28) of IC701.
YES
Replace IC651.

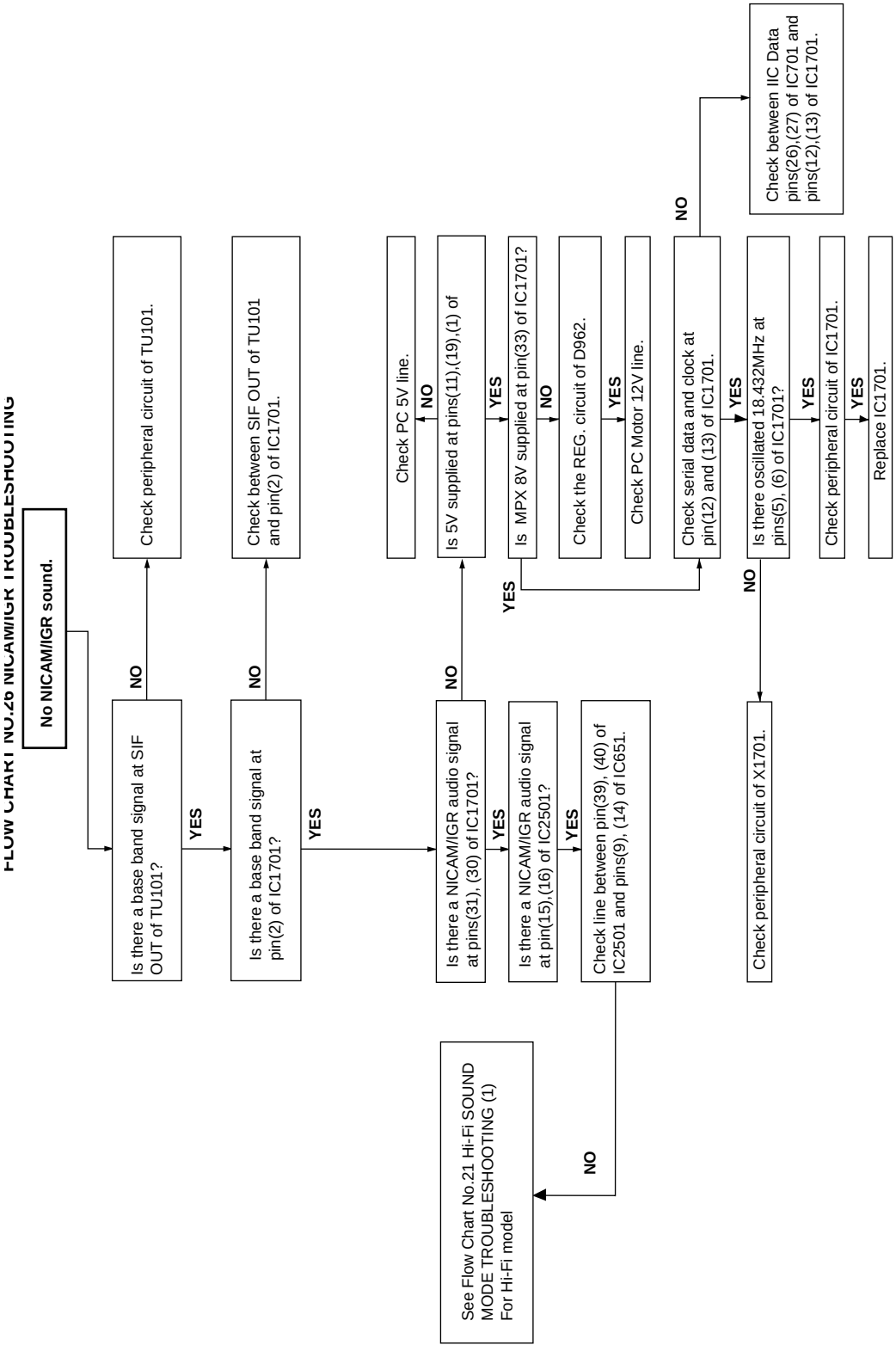
FLOW CHART NO.24 LINEAR SOUND MODE TROUBLESHOOTING(1)


No linear sound recording (E-E mode is possible)
Is " L" level applied at pin(99) of IC201?
NO
Check the AUDIO MUTE (H) line between pin (99) of IC201 and pin (81) of IC701.
YES
Is there signal at pin (4) of IC201?
NO
Replace IC201.
YES
Is the supply voltage of 12V fed to pin (2) of T601?
NO
Check M 12V line.
YES
Is there signal (Bias) at pin (5) of T601?
NO
Check the Bias oscillation circuit (T601, Q602,Q603) and A-ERASE CTL line.
YES
Is there signal (Bias + Audio sig) at pin (6) of T601?
NO
Check peripheral circuits of T601.
YES
Check the MH-AA harness and A/C head.

FLOW CHART NO.25 LINEAR SOUND MODE TROUBLESHOOTING(2)


No linear sound playback (E-E mode is possible)
Is there signal at pin (100) of IC201?.
NO
YES
Are there MH-AA harness and the PB AMP peripheral parts normal?
YES
Replace IC201.
Are there signal at pin(1) of IC601?
PAL EP ONLY
YES
Clean A/C head.
YES
Is the azimuth height of A/C head properly adjusted?
NO
Re-adjust azimuth.
YES
Replace A/C head.
Is there " L " level at pin (99) of IC201.
NO
YES
Check the AUDIO MUTE (H) line between pin (99) of IC201 and pin (81) of IC701.
YES
Is there signal at pin (11) of IC201.
NO
YES
Replace IC201.
Is there audio signal inputted at and pin(62) of IC651.
NO
YES
Check line between pin(11) of IC201 and pin(62) of IC651.
Hi-Fi model ONLY

FLOW CHART NO.20 NICAM/IGR TROUBLESHOOTING


No NICAM/IGR sound.
Is there a base band signal at SIF OUT of TU101?
NO
Check peripheral circuit of TU101.
YES
Is there a base band signal at pin(2) of IC1701?
NO
Check between SIF OUT of TU101 and pin(2) of IC1701.
YES
Is there a NICAM/IGR audio signal at pins(31), (30) of IC1701?
NO
Check PC 5V line.
YES
Is there a NICAM/IGR audio signal at pin(15),(16) of IC2501?
NO
Is 5V supplied at pins(11),(19),(1) of
YES
Check line between pin(39), (40) of IC2501 and pins(9), (14) of IC651.
NO
Is MPX 8V supplied at pin(33) of IC1701?
NO
YES
Check the REG. circuit of D962.
YES
Check PC Motor 12V line.
YES
Check serial data and clock at pin(12) and (13) of IC1701.
NO
Check between IIC Data pins(26),(27) of IC701 and pins(12),(13) of IC1701.
YES
Is there oscillated 18.432MHz at pins(5), (6) of IC1701?
NO
YES
Check peripheral circuit of X1701.
Check peripheral circuit of IC1701.
YES
Replace IC1701.
See Flow Chart No.21 Hi-Fi SOUND MODE TROUBLESHOOTING (1) For Hi-Fi model

FLOW CHART NO.27 DECODER TROUBLESHOOTING

Not output from 21pin connector in video and audio signal.

Is voltage 5V applied to the video section power terminal at pins(24), (29) of IC2501?

NO → Check STBY 5V line.

YES

Is voltage 12V applied to the audio section power terminal at pins(14) of IC2501?

NO → Check STBY 12V line.

YES

Is there SDA and SCL signal applied to pins(21) and (22) of IC2501?

NO → Check line between pins(21), (22) of IC2501 and pins(17), (18) of IC701.

YES

Check signal line from video and audio function logic table as shown below.

<Hi-Fi Audio Double scart>

MODE SELECT	INPUT SIGNAL	SIG. FLOW	DECODER CIRCUIT INPUT	(switch)	OUTPUT	SIG. FLOW	OUTPUT SIGNAL
(A)	Pin47 of IC701(Y/C video output	□□>	pin7		pin25	□□>	E1(L1) video output
(B)	E2(L2) video input	□□>	pin28				21PIN CONNECTOR
(C)	Front video input	□□>	pin13				
(A)	Pin57 of IC651(Audio output L-ch)	□□>	pin2		pin42	□□>	E1(L1) audio output (L-ch)
(B)	E2(L2) audio input(L/R-ch)	□□>	pin33				21PIN CONNECTOR
(C)	Front audio L-ch input	□□>	pin11				
(A)	Pin54 of IC651(Audio output R-ch)	□□>	pin1		pin43	□□>	E1(L1) audio output(R-ch)
(B)	E2(L2) audio intput(R-ch)	□□>	pin34				21PIN CONNECTOR
(C)	Front audio R-ch input	□□>	pin10				
(A)	Tuner video output	□□>	pin18		pin26	□□>	E2(L2) video output(L-ch)
(B)	E1(L1) video input	□□>	pin23				21PIN CONNECTOR
(C)	Pin47 of IC701(Y/C video output)	□□>	pin7				
(A)	MPX output(L-ch)	□□>	pin16		pin30	□□>	E2(L2) audio output (L-ch)
(B)	E1(L1) audio input(L-ch)	□□>	pin36				21PIN CONNECTOR
(C)	Pin57 of IC651(Audio output(L-ch))	□□>	pin2				
(A)	MPX output(R-ch)	□□>	pin15		pin31	□□>	E2(L2) audio output (R-ch)
(B)	E1(L1) audio input(R-ch)	□□>	pin37				21PIN CONNECTOR
(C)	Pin54 of IC651(Audio output R-ch)	□□>	pin1				
(A)	E2(L2) video input	□□>	pin28		pin5	□□>	Pin31 of IC201
(B)	E1(L1) video input	□□>	pin23				Y/C video input
(C)	Tuner video output	□□>	pin18				(Aux. input)
(D)	Front video input	□□>	pin13				
(A)	E2(L2) audio input(L-ch)	□□>	pin33		pin39	□□>	Pin61 of IC651
(B)	E1(L1) audio input(L-ch)	□□>	pin36				(Aux. input
(C)	MPX output(L-ch)	□□>	pin16				
(D)	Front audio L-ch input	□□>	pin11				
(A)	E2(L2) audio input (R-ch)	□□>	pin34		pin40	□□>	Pin52 of IC651
(B)	E1(L1) audio input (R-ch)	□□>	pin37				(Audio input (R-ch)
(C)	MPX output (R-ch)	□□>	pin15				
(D)	Front audio R-ch input	□□>	pin10				

REPLACEMENT OF IC710(E²PROM)

《Servicing precautions》
When the IC710(E²PROM) has been replaced, make the following reprogramming.
Depending on models, the IC710(E²PROM) has been factory adjusted for it s memory function.
It s therefore necessary to reprogram the memory function for the model in question.
Note that the servo circuit requires readjustments for the slow and still modes.

1. Memory function reprogramming.
   a. Check the power off.(Power is standby mode)
   b. Make for moment short-circuit test point(TP801), located at the front side on the main PWB.
      Be sure that all the display light up into the TEST mode.
   c. Using the CHANNEL(+) AND (—) buttons, select the right function numbers from JP0 to JP39, which appear in the display, referring to the E²PROM map.
      Press the DISPLAY button to pickup the functions(ON) and the CLEAR button to discard the functions(OFF).
      DISPLAY and CLEAR buttons, are located on the remote control unit.
      * when the DISPLAY button has been pressed (ON), the memory function number starts flashing.
      * when the CLEAR button has been pressed (OFF), the memory function number lights up.
   d. Example : " ON" and " OFF" are taken as " 1" and " 0" respectively.
      The numbers JP0 to JP39 are divided into four groups and each group s setting is displayed in hexadecimal notation.

JP27	JP26	JP25	JP24	JP23	JP22	JP21	JP20	JP19	JP18	JP17	JP16	JP15	JP14	JP13	JP12	JP11	JP10	JP9	JP8	JP7	JP6	JP5	JP4	JP3	JP2	JP1	JP0
1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0
		↓			↓				↓				↓				↓				↓				↓		
		C			0				0				4				3				0				0		

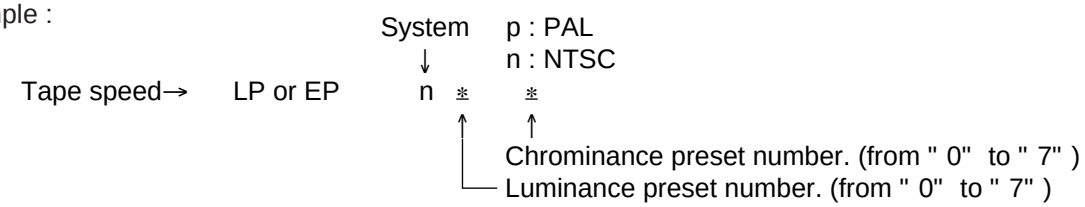
JP39	JP38	JP37	JP36	JP35	JP34	JP33	JP32	JP31	JP30	JP29	JP28
0	0	0	0	0	0	0	1	0	0	0	0
		↓			↓				↓		
		0			1				0		

Also recording level preset number selected from the ten keys on the remote control unit which appear in the LCD display, referring to the E²PROM map.

Out lights	SP p * *	LP p * *	SP n * *	EP n * *
blank	selection from the ten keys. (from " 0" to " 7")	selection from the ten keys. (from " 0" to " 7")	selection from the ten keys. (from " 0" to " 7")	selection from the ten keys. (from " 0" to " 7")

2. Memory recording preset level reprogramming.
   a. Similarly to the above step 1-a and 1-b the same operate.
   b. Using the CHANNEL (+) AND (-) buttons, select the right function numbers continued from recording preset number as has been JP0~JP39, which appear in the LCD display, referring to the E²PROM map.

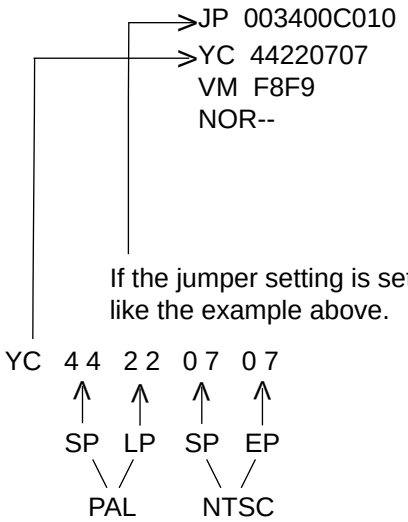
3. Example :



3. Finally make for a moment short-circuit test point(TP801), located at the front side on the main PWB to clear the TEST mode.

4. Jumper setting of JP0 to JP39 in hexadecimal notation and REC current setting.

a. Check the power on. (Power is ON)
b. Make short circuit test point(TP801) and hold the point.
Be sure that all the LCD display light up into the TEST mode.
c. The jumper setting in hexadecimal notation and REC current setting will be displayed on the television screen (upper left).
d. Example:



If the jumper setting is set as step 1-d, it will be displayed on television screen like the example above.

5. Finally release the test point to return to normal screen (E-E mode).

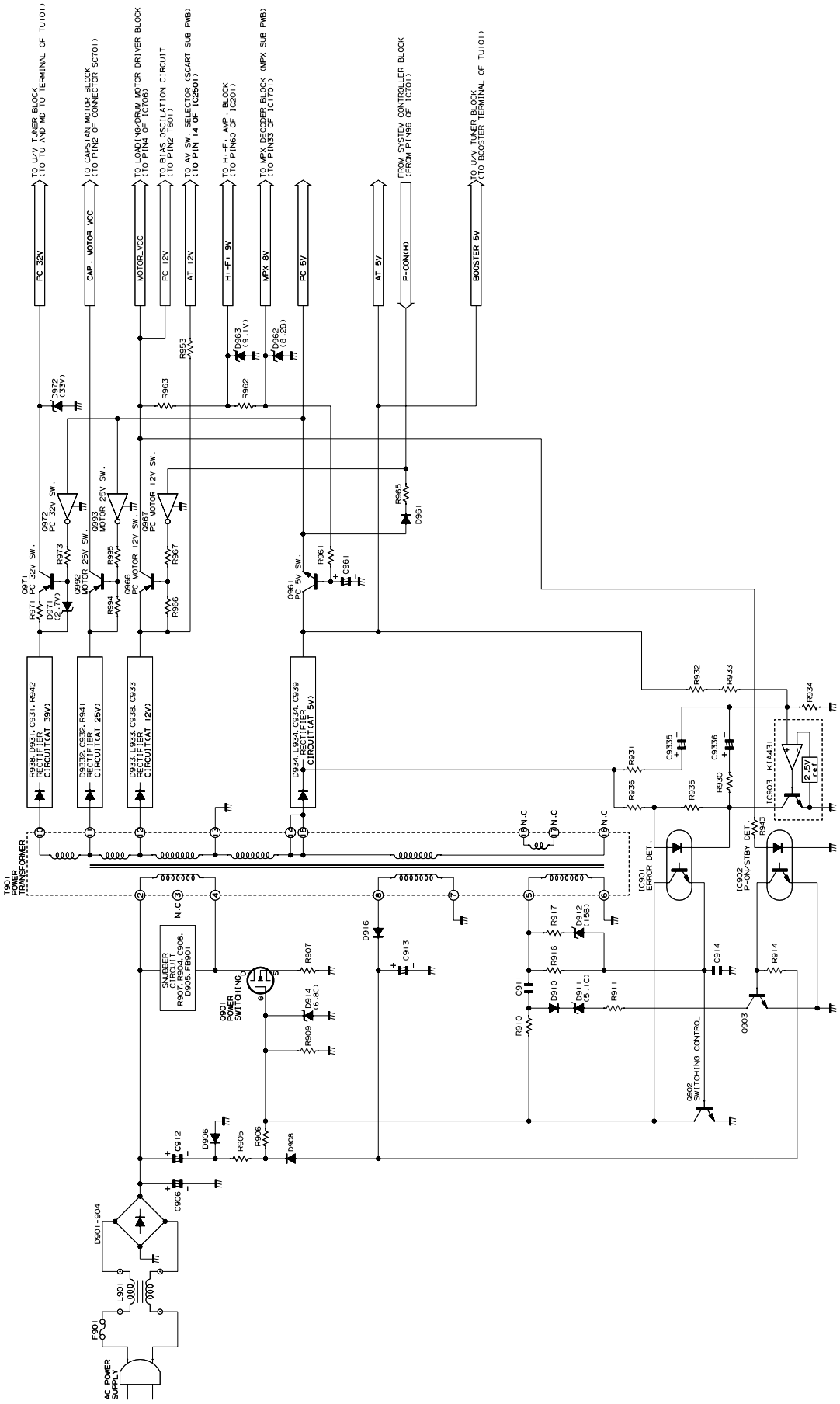
ROM MAP

	MODEL	GH61GM	GH611M	FH310GM	GH61SM	FH310SM	GH60SM	GH600SM	GH601SM
	PAL SP	46	46	46	46	46	46	46	46
	PAL LP	26	26	26	26	26	26	26	26
	SECAM SP	07	07	07	07	07	07	07	07
	SECAM LP	07	07	07	07	07	07	07	07
	IC701	iXA044WJ	iXA044WJ	iXA044WJ	iXA044WJ	iXA044WJ	iXA045WJ	iXA045WJ	iXA045WJ
JP39	A.DUB	0	0	0	0	0	0	0	0
JP38	NOT SLOW ATR	0	0	0	0	0	0	0	0
JP37	S.SIMPLE PB	1	1	1	1	1	0	0	0
JP36	NTPB	1	1	1	1	1	1	1	1
JP35	NTSC SKEW	0	0	0	0	0	0	0	0
JP34	HEAD 2	0	0	0	0	0	0	0	0
JP33	HEAD 1	1	1	1	1	1	1	1	1
JP32	HEAD 0	0	0	0	0	0	0	0	0
JP31	GAMMA	0	0	0	0	0	0	0	0
JP30	LOW PWR 5MIN	0	0	0	0	0	0	0	0
JP29	POSI84	1	1	1	1	1	1	1	1
JP28	R/C CODE	0	0	0	0	0	0	0	0
JP27	DNR	0	0	0	0	0	0	0	0
JP26	POST CODE	0	0	0	0	0	0	0	0
JP25	SAT CTL	0	0	0	0	0	0	0	0
JP24	AV LINK/16:9	0	0	1	0	1	0	0	0
JP23	Hi-Fi	1	1	1	1	1	1	1	1
JP22	SORT/CLOCK	1	1	1	1	1	0	0	0
JP21	DECODER	1	1	1	1	1	1	1	1
JP20	SURROUND	0	0	0	0	0	0	0	0
JP19	IGR	1	1	1	1	1	1	1	1
JP18	NICAM	0	0	0	1	1	1	0	1
JP17	G-CODE1	0	0	0	0	0	0	0	0
JP16	G-CODE0	1	1	1	1	1	0	0	0
JP15	EP	1	1	1	1	1	1	1	1
JP14	LP	0	0	0	0	0	0	0	0
JP13	F-AV	1	1	1	1	1	1	1	1
JP12	2 SCART	1	0	1	1	1	1	1	1
JP11	RF OUTPUT OFF	0	0	0	0	0	0	0	0
JP10	TUNER2	0	0	0	0	0	0	0	0
JP9	TUNER1	0	0	0	0	0	0	0	0
JP8	TUNER0	0	0	0	0	0	0	0	0
JP7	SYSTEM1	0	0	0	0	0	0	0	0
JP6	SYSREM0	0	0	0	0	0	0	0	0
JP5	380FF/REW	1	1	1	1	1	1	1	1
JP4	LOW POWER	0	0	0	0	0	0	0	0
JP3	OEM	0	0	0	0	0	0	0	0
JP2	VPS/PDC	1	1	1	1	1	0	0	0
JP1	COLOUR1	0	0	0	0	0	0	0	0
JP0	COLOUR0	1	1	1	1	1	1	1	1
	DISPLAY	520B9E0223	520B9E0223	520B9E1223	520BDE0223	520BDE1223	120BCA0221	120B8A0221	120BCA0221

0:LIGHT UP 1:FLASHING

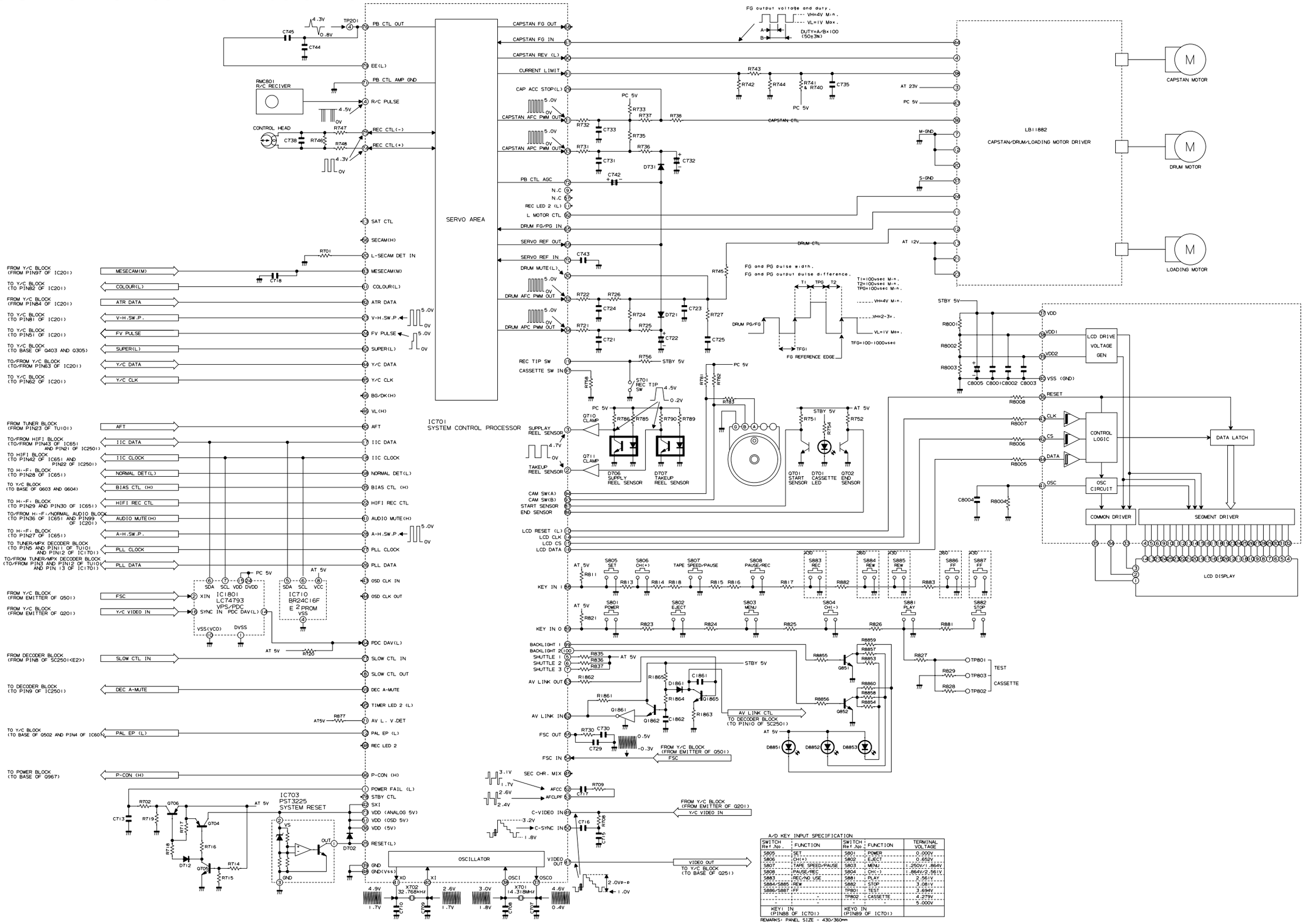
8 . BLOCK DIAGRAM / BLOCKSCHALTBILD

POWER CIRCUIT BLOCK DIAGRAM / HAUPTSTROMKREIS-BLOCKSCHALTBILD



VC-GH61GM/SM,GH611GM
VC-GH60SM,GH600SM,GH601SM
VC-FH310GM/SM

SYSTEM SERVO BLOCK DIAGRAM / SYSTEMS-SERVO-BLOCKSCHALTBILD



A/D KEY INPUT SPECIFICATION

SWITCH Ref.No.	FUNCTION	SWITCH Ref.No.	FUNCTION	TERMINAL VOLTAGE
S805	SET	S801	POWER	0.000V
S806	CH(+)	S802	EJECT	0.652V
S807	TAPE SPEED/PAUSE	S803	MENU	1.250V/1.864V
S808	PAUSE/REC	S804	CH(-)	1.864V/2.561V
S883	REC/NO USE	S881	PLAY	2.561V
S884/S885	REW	S882	STOP	3.081V
S886/S887	FF	TP801	TEST	3.694V
-	-	TP802	CASSETTE	4.279V
-	-	-	-	5.000V
KEY1 IN (PIN88 OF IC701)		KEY0 IN (PIN89 OF IC701)		

REMARKS: PANEL SIZE - 430/360mm

VC-GH61GM/SM,GH611GM
VC-GH60SM,GH600SM,GH601SM
VC-FH310GM/SM

SIGNAL FLOW BLOCK DIAGRAM / SIGNALVERLAUF-BLOCKSCHALTBILD

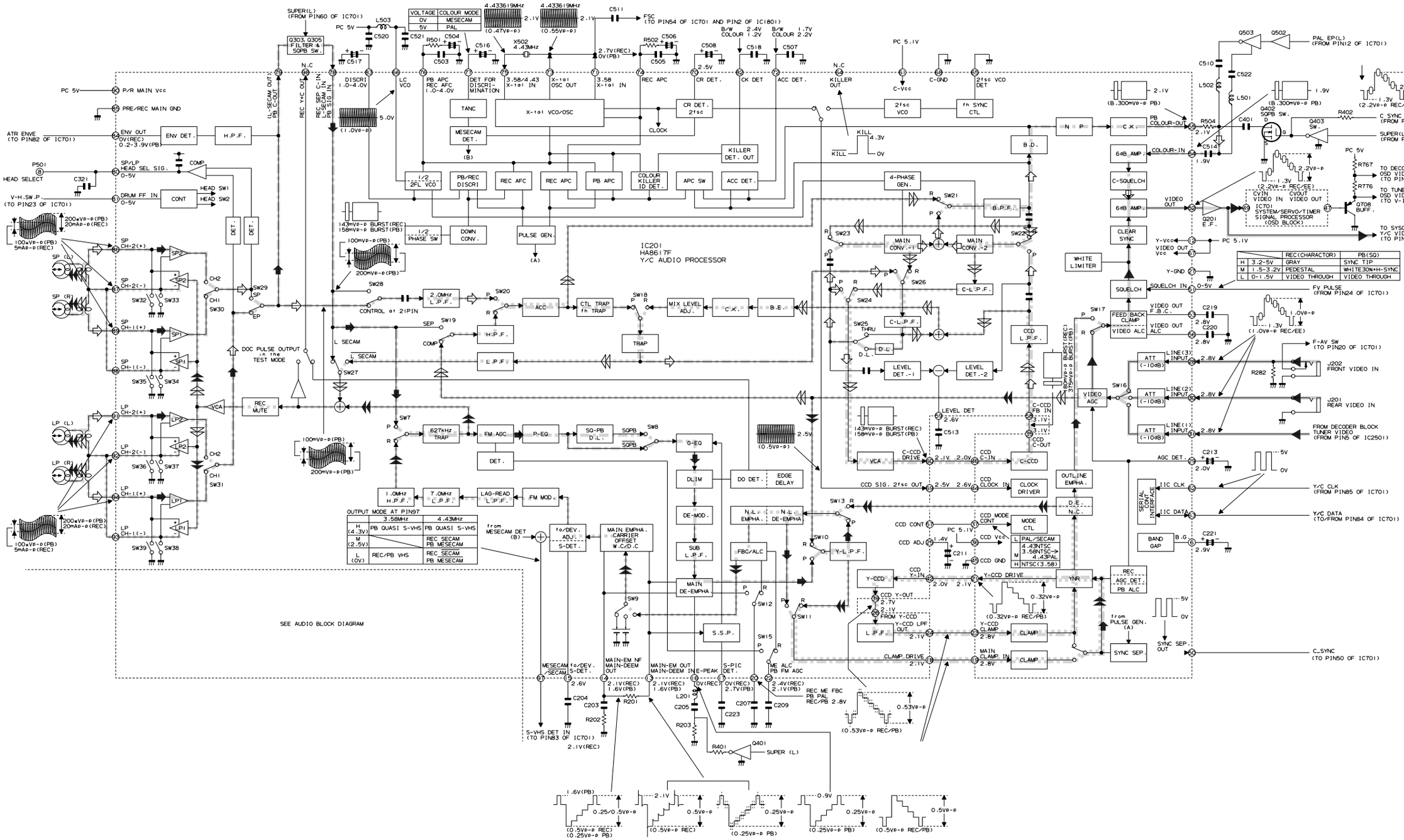
EE Signal
EE Signal

PB Luminance Signal
Wiedergabe-Luminanzsignal

PB Chrominance Signal
Wiedergabe-Chrominanzsignal

REC Luminance Signal
Aufnahme-Luminanzsignal

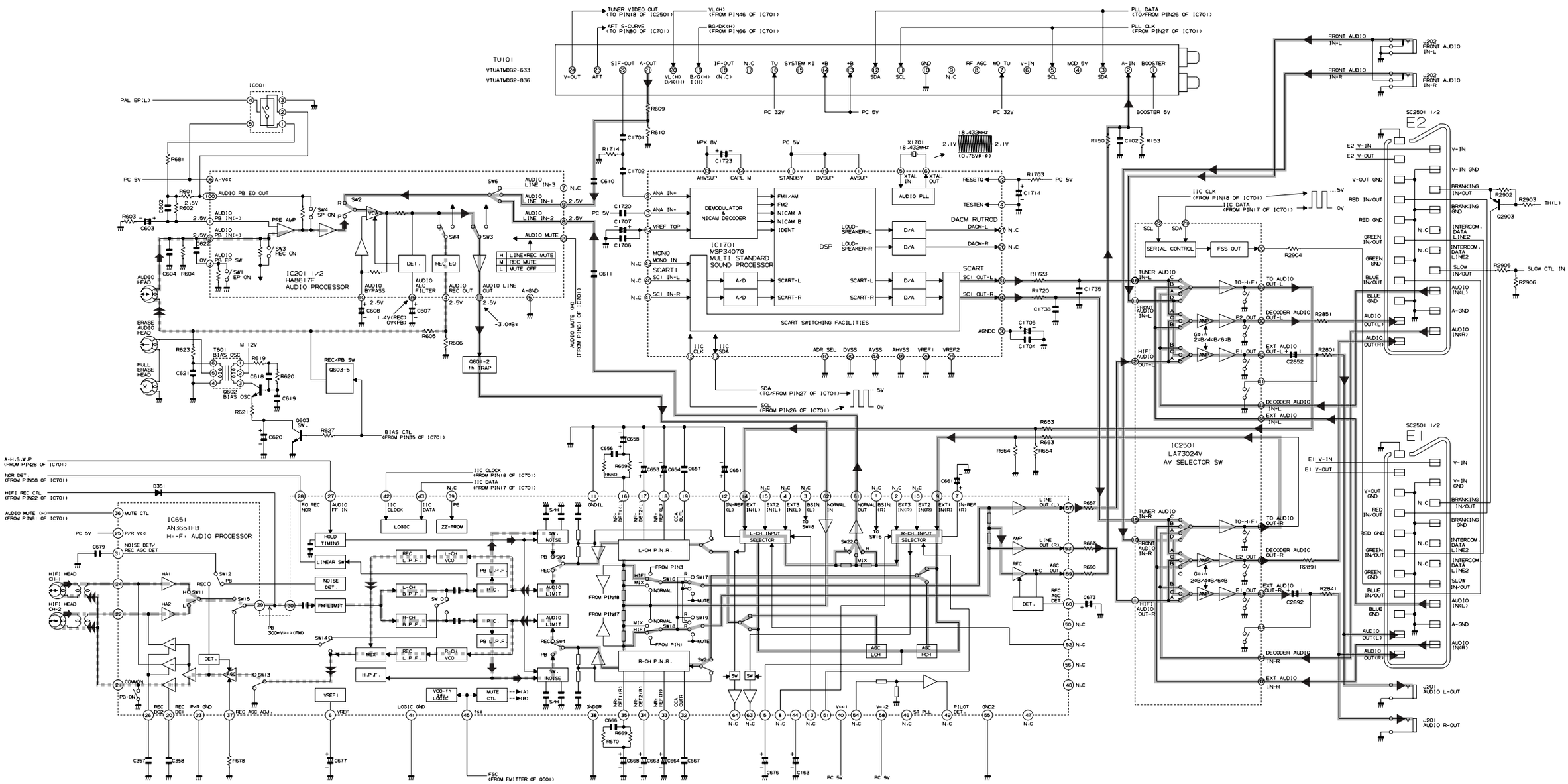
REC Chrominance Signal
Aufnahme-Chrominanzsignal



VC-GH61GM/SM,GH611GM
VC-GH60SM,GH600SM,GH601SM
VC-FH310GM/SM

AUDIO BLOCK DIAGRAM / AUDIO-SCHALTKREIS-BLOCKSCHALTBILD

EE Signal
E-E Signal
PB Signal
Wiedergabe signal
REC Signal
Aufnahme sihnal



SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE:
BE SURE TO USE GENUINE PARTS FOR SECURING THE SAFETY AND RELIABILITY OF THE SET.
PARTS MARKED WITH " ⚠ " AND PARTS SHADED (IN BLACK) ARE ESPECIALLY IMPORTANT FOR MAINTAINING THE SAFETY AND PROTECTING ABILITY OF THE SET.
BE SURE TO REPLACE THEM WITH PARTS OF SPECIFIED PART NUMBER.

SAFETY NOTES:
1. *DISCONNECT THE AC PLUG FROM THE AC OUTLET BEFORE REPLACING PARTS.*
2. *SEMICONDUCTOR HEAT SINKS SHOULD BE REGARDED AS POTENTIAL SHOCK HAZARDS WHEN THE CHASSIS IS OPERATING.*

NOTES:
1. *The unit of resistance "ohm" is omitted (k=1000 ohm, M=1 Meg ohm).*
2. *All resistors are 1/16 watt, unless otherwise noted.*
3. *The unit of capacitance "F" is omitted (μ=μF, p=μμF).*
4. *The values in parentheses are the ones in the PB mode; the values without parentheses are the ones in the REC mode.*

VOLTAGE MEASUREMENT CONDITIONS:
1. *DC voltages are measured between points indicated and chassis ground by VTVM, with AC230V~240V/50Hz supplied to unit and all controls are set to normal viewing picture unless otherwise noted.*
2. *Voltages are measured with 10000μV B & W or colour noted.*

WAVEFORM MEASUREMENT CONDITIONS:
10000μV 87.5 percent modulated colour bar signal is fed into tuner.

CAUTION:
This circuit diagram is original one. Therefore there may be a slight difference from yours.

SHALTPLAN

WICHTIGER SICHERHEITSHINWEISE:
IM INTERSSE DER SCHERHEIT UND ZUVERLÄSSIGKEIT SOLFTEN DIE ORIGINAL TEILE IMMER VERWENDET WERDEN.
DIE MIT " ⚠ " BEZEICHNETEN BZW. (SCHWARZ) GESCHATTETEN TEILE SIND BESONDERS WICHTING SOWHOL FÜR DIE SIECHERHEIT ALS AUCH FÜR DIE SICHERE LEISTUNG.
BEIM AUSTAUSCH BITTE IMMER DIE TEILE, WIE VON DEN NUMMERN VORGESCHRIEBEN, VERWENDEN.

SICHERHEITSHINWEISE:
1. *VOR AUSWECHSELN VON TEILEN DEN NETZKABELSTECKER AUS DER NETZSTECKDOSE ZIEHEN.*
2. *KÜHLKÖRPER VON HALBLEITERN SOLLTEN BEI BETRIEB DES CHASSIS ALS MÖGLICHE URSACHEN ELEKTRISCHER SCHALÄGE BETRACHTET WERDEN.*

ANMERKUNGEN:
1. *Die Wiederstandseinheit "Ohm" wird weggelassen (k = 1000 Ohm, M = 1 Megohm).*
2. *Alle Wiederstände haben 1/16 Watt, sofern nicht anders angegeben.*
3. *Die Kapazitätseinheit "F" wird weggelassen (μ = μF, p = μμF).*
4. *Die in Klammern gesetzten Werte werden in der Wiedergabe-Betriebsart erhalten; die Werte ohne Klammern werden in der Aufnahme-Betriesart erhalten.*

SPANNUNGSMESSBEDINGUNGEN:
1. *Gleichspannungen werden zwischen den angegeben Punken und der Chassis mit Hilfe eines Röhrenvoltmeters gemessen, wobei dem Gerät 230 V Netzstrom (50 Hz) zugeführt wird und alle Bedienungselemente auf ein normales Bild eingestellt sind, sofern nicht anders angegeben.*
2. *Spannungen werden mit einem 1000μV Schwarzweißoder Farbsignal gemessen.*

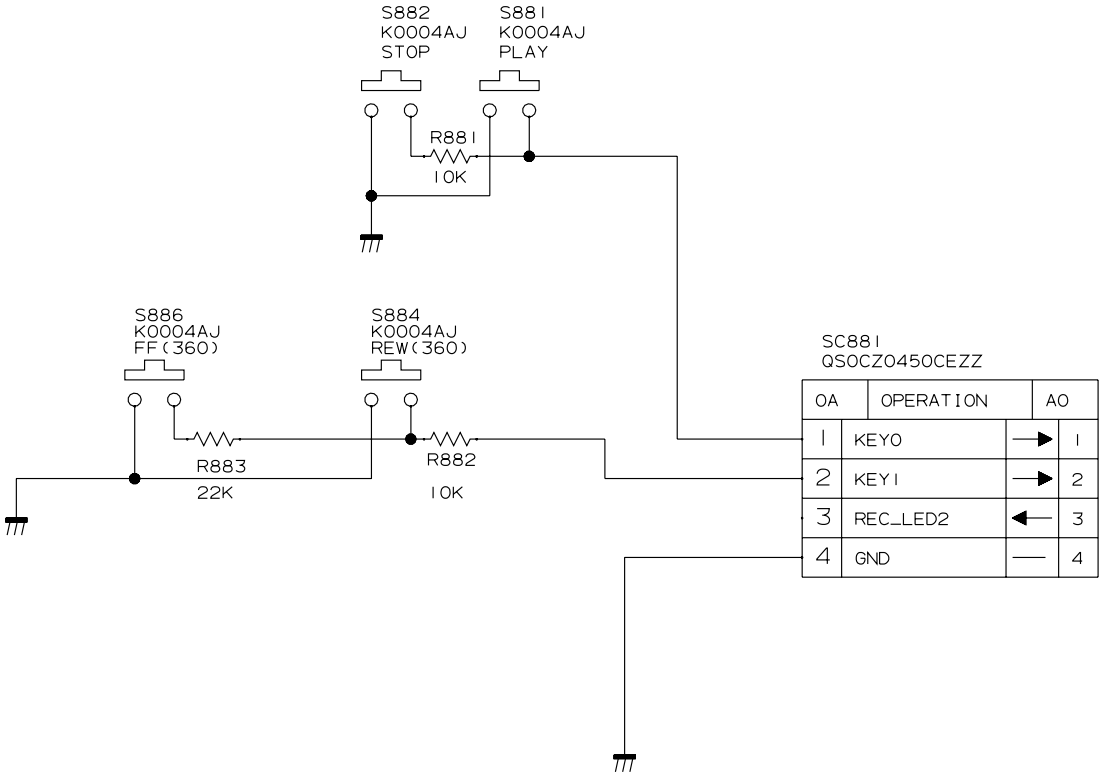
WELLENFORMMESSBEDINGUNGEN:
Ein um 87,5% modulierted 1000μV-Farbbalken-signal wird dem Tuner zugeleitet.

ANMERKUNG:
Dieses Leitungsschema ist das originale. Daher kann es von ihrem Leitungsschema etwas verschieden sein.

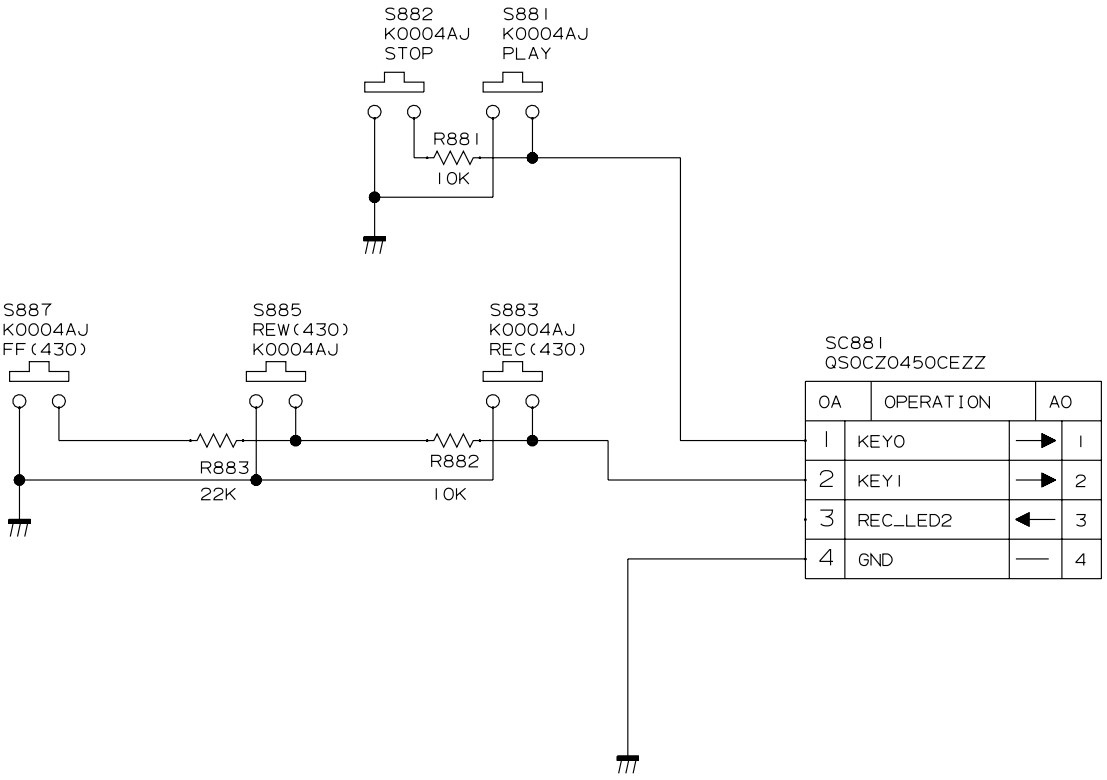
9. SCHEMATIC DIAGRAM AND PWB FOIL PATTERN / SCHALTSCHEMA UND PLATINENMUSTER

OPERATION CIRCUIT / BEDIENUNGSSCHALTUNG

(VC-GH61GM/SM,GH611GM/SM)

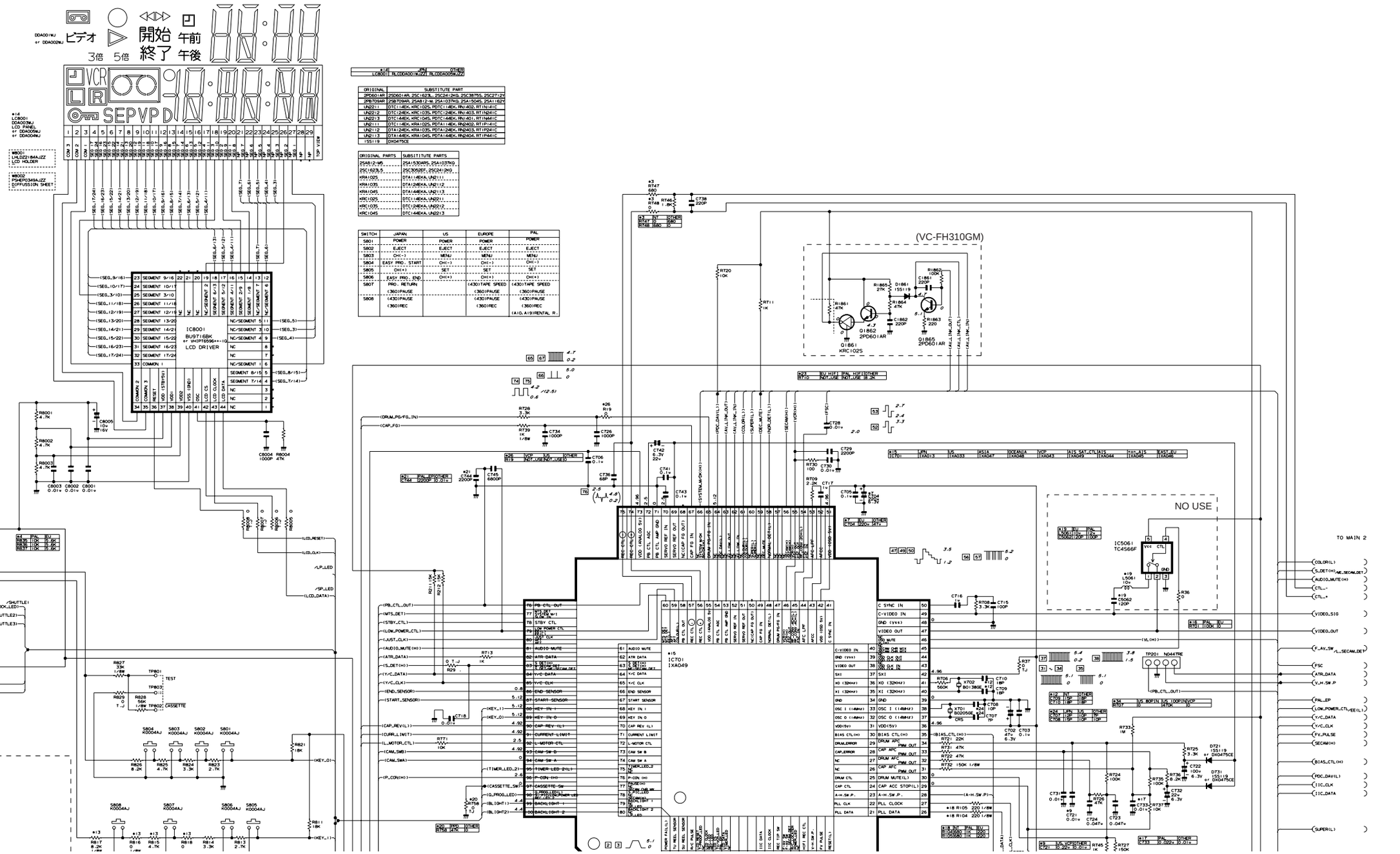


(VC-FH310GM/SM)



VC-GH61GM/SM,GH611GM
VC-GH60SM,GH600SM,GH601SM
VC-FH310GM/SM

MAIN CIRCUIT(1) / HAUPTSCHALTUNG (1-1)



ORIGINAL	SUBSTITUTE PART
2PD601AR	2SD601AR, 2SC1623-L, 2SC2412K-Q, 2SC3875S, 2SC2712Y
2SB709AR	2SB709AR, 2SA812-M, 2SA1037K-Q, 2SA1504S, 2SA1162Y
UN2211	DTC114EK, KRC102S, PDTC114EK, RN1402, RT1P141C
UN2212	DTC124EK, KRC103S, PDTC124EK, RN1403, RT1P241C
UN2213	DTC144EK, KRC104S, PDTC144EK, RN1401, RT1N641C
UN2111	DTC114EK, KRA102S, PDTA114EK, RN2402, RT1P141C
UN2112	DTA124EK, KRA103S, PDTA124EK, RN2403, RT1P241C
UN2113	DTA144EK, KRA104S, PDTA144EK, RN2404, RT1P441C
1SS119	DX0475CE

ORIGINAL PARTS	SUBSTITUTE PARTS
2SA812-M	2SA1530AR5, 2SA1037KQ
2SC1623-L	2SC3953EF, 2SC2412KQ
KRA102S	DTA114EKA, UN2111
KRA103S	DTA124EKA, UN2112
KRA104S	DTA144EKA, UN2113
KRC102S	DTC114EKA, UN2211
KRC103S	DTC124EKA, UN2212
KRC104S	DTC144EKA, UN2213

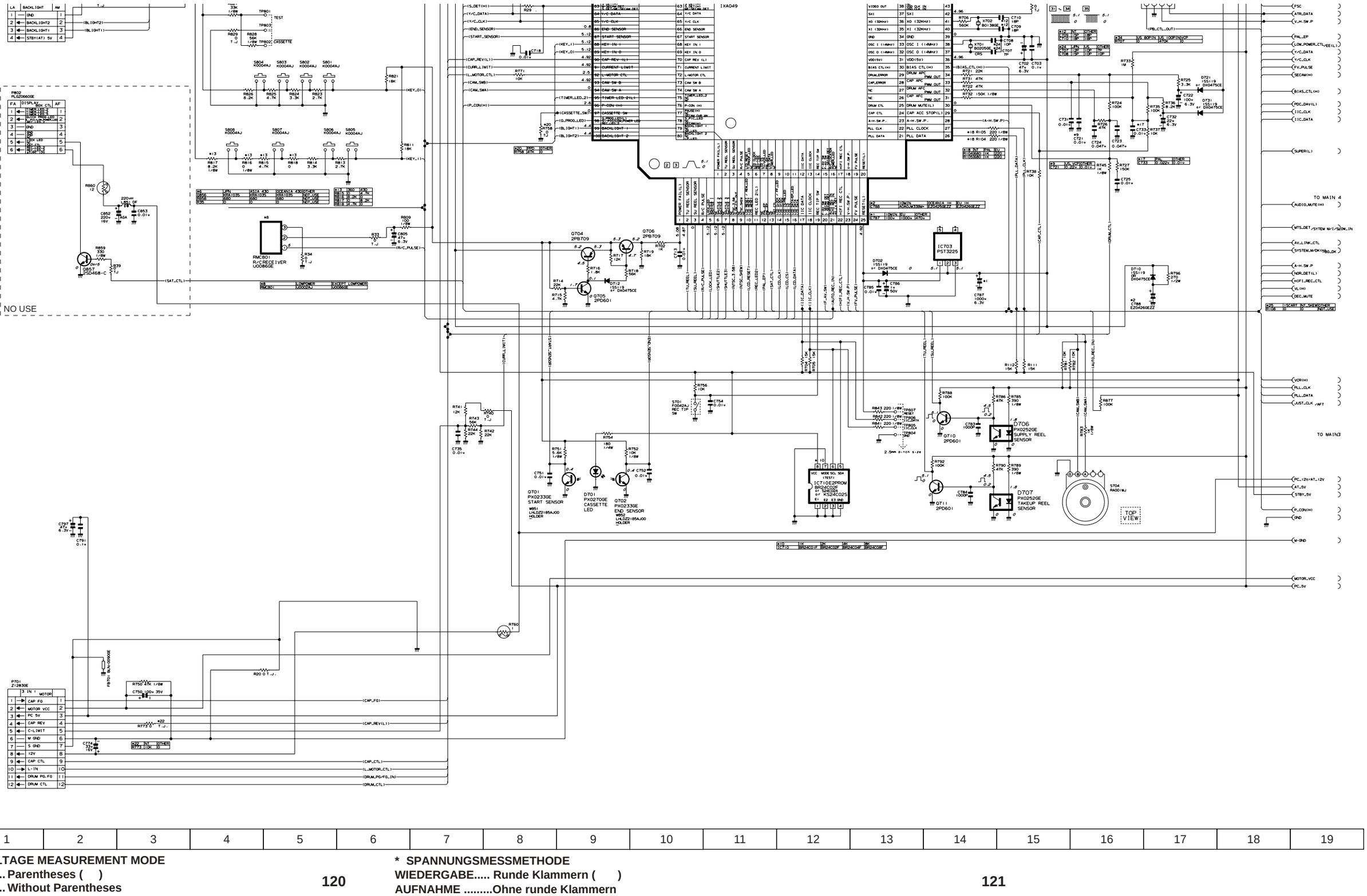
SWITCH	JAPAN	US	EUROPE	PAL
S801	POWER	POWER	POWER	POWER
S802	EJECT	EJECT	EJECT	EJECT
S803	CH(-)	MENU	MENU	MENU
S804	EASY PRO. START	CH(-)	CH(-)	CH(-)
S805	CH(+)	SET	SET	SET
S806	EASY PRO. END	CH(+)	CH(+)	CH(+)
S807	PRO. RETURN		(430)TAPE SPEED	(430)TAPE SPEED
	(360)PAUSE		(360)PAUSE	(360)PAUSE
S808	(430)PAUSE		(430)PAUSE	(430)PAUSE
	(360)REC		(360)REC	(360)REC
				(A10, A19)RENTAL R.

* VOLTAGE MEASUREMENT MODE
PB ..... Parentheses ( )
REC ... Without Parentheses

* SPANNUNGSMESSMETHODE
WIEDERGABE..... Runde Klammern ( )
AUFNAHME .....Ohne runde Klammern

VC-GH61GM/SM,GH611GM
VC-GH60SM,GH600SM,GH601SM
VC-FH310GM/SM

MAIN CIRCUIT(1) / HAUPTSCHALTUNG (1-2)

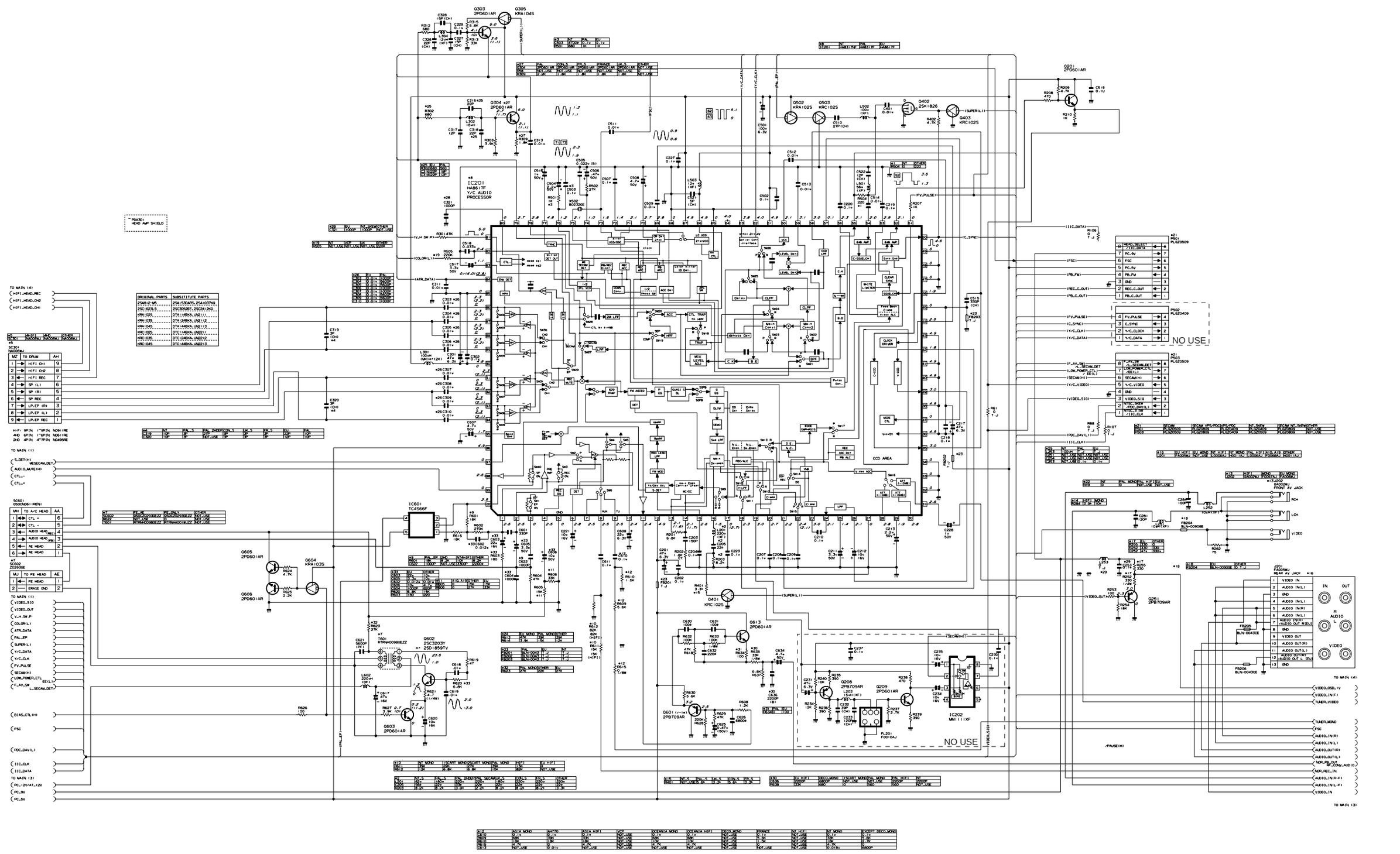


* VOLTAGE MEASUREMENT MODE
PB ..... Parentheses ( )
REC ... Without Parentheses

* SPANNUNGSMESSMETHODE
WIEDERGABE..... Runde Klammern ( )
AUFNAHME .....Ohne runde Klammern

VC-GH61GM/SM,GH611GM
VC-GH60SM,GH600SM,GH601SM
VC-FH310GM/SM

MAIN CIRCUIT(2) / HAUPTSCHALTUNG (2)

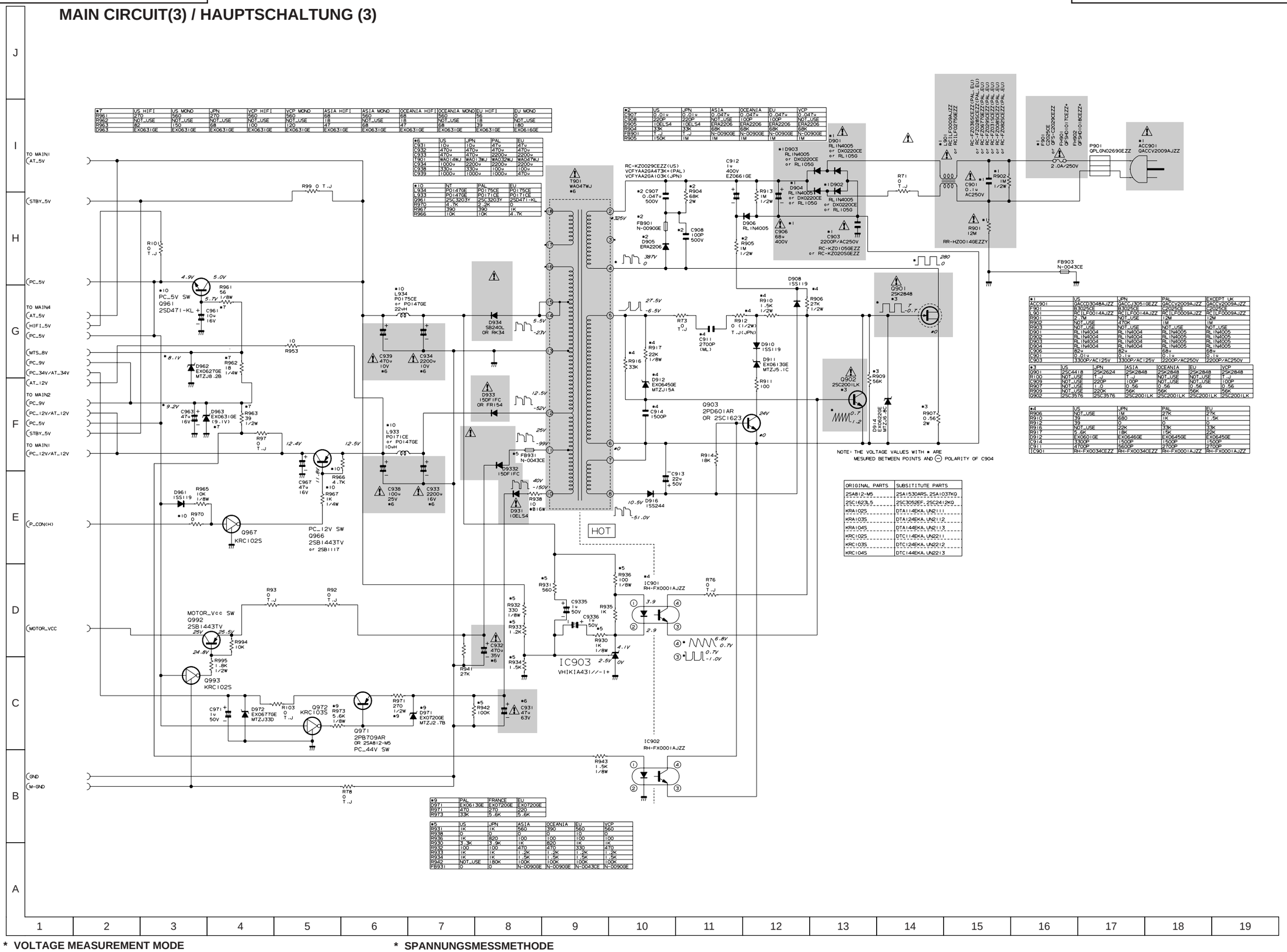


* VOLTAGE MEASUREMENT MODE
PB ..... Parentheses ( )
REC ... Without Parentheses

* SPANNUNGSMESSMETHODE
WIEDERGABE..... Runde Klammern ( )
AUFNAHME .....Ohne runde Klammern

VC-GH61GM/SM,GH611GM
VC-GH60SM,GH600SM,GH601SM
VC-FH310GM/SM

MAIN CIRCUIT(3) / HAUPTSCHALTUNG (3)



*7	US HIFI	US MONO	JPN	VCP HIFI	VCP MONO	ASIA HIFI	ASIA MONO	OCEANIA HIFI	OCEANIA MONO	EU HIFI	EU MONO
R961	270	560	270	560	560	68	560	68	560	56	0
R962	NOT_USE	NOT_USE	NOT_USE	NOT_USE	NOT_USE	18	NOT_USE	18	NOT_USE	18	NOT_USE
R963	82	150	68	100	120	47	68	47	68	39	180
D963	EX0631GE	EX0631GE	EX0631GE	EX0631GE	EX0631GE	EX0631GE	EX0631GE	EX0631GE	EX0631GE	EX0631GE	EX0616GE

*2	US	JPN	ASIA	OCEANIA	EU	VCP
C907	0.01u	0.01u	0.047u	0.047u	0.047u	0.047u
C908	220P	220P	NOT_USE	100P	100P	NOT_USE
D905	10ELS4	10ELS4	ERA2206	ERA2206	ERA2206	ERA2206
R904	33K	33K	68K	68K	68K	68K
FB901	T_U	T_U	N-0090GE	N-0090GE	N-0090GE	N-0090GE
R905	150K	1M	1M	1M	1M	1M

*6	US	JPN	PAL	EU
C931	10u	10u	47u	47u
C932	470u	470u	470u	470u
C933	470u	470u	2200u	2200u
T901	WA014WJ	WA013WJ	WA032WJ	WA047WJ
C934	1000u	2200u	2200u	2200u
C938	330u	330u	100u	100u
C939	1000u	1000u	1000u	470u

*10	INT	PAL	EU
L934	P0147GE	P0175CE	P0175CE
L933	P0147GE	P0171CE	P0171CE
Q961	2SC3203Y	2SC3203Y	2SD471-KL
R970	4.7K	2.2K	0
R967	390	390	1K
R966	10K	10K	4.7K

*1	US	JPN	PAL	EXCEPT UK
ACC901	QACCD3048AJZZ	QACCJ3051GEZZ	QACCV2009AJZZ	QACCV2009AJZZ
F901	B3025CE	B3025CE	C2025CE	C2025CE
L901	RCILF0014AJZZ	RCILF0014AJZZ	RCILF0009AJZZ	RCILF0009AJZZ
R901	2.7M	NOT_USE	12M	12M
R902	NOT_USE	470K	1M	1M
R903	NOT_USE	NOT_USE	NOT_USE	NOT_USE
D901	RLN4004	RLN4004	RLN4005	RLN4005
D902	RLN4004	RLN4004	RLN4005	RLN4005
D903	RLN4004	RLN4004	RLN4005	RLN4005
D904	RLN4004	RLN4004	RLN4005	RLN4005
C906	82u	82u	68u	68u
C901	0.01u	0.1u	0.1u	0.1u
C903	3300P/AC125V	3300P/AC125V	2200P/AC250V	2200P/AC250V

*3	US	JPN	ASIA	OCEANIA	EU	VCP
Q901	2SC4418	2SK2624	2SK2848	2SK2848	2SK2848	2SK2848
R100	NOT_USE	T_U	T_U	NOT_USE	NOT_USE	T_U
C909	NOT_USE	220P	100P	NOT_USE	NOT_USE	100P
R907	NOT_USE	1.0	0.56	0.56	0.56	0.56
R909	NOT_USE	220K	56K	56K	56K	56K
D902	2SC3576	2SC3576	2SC2001LK	2SC2001LK	2SC2001LK	2SC2001LK

*4	US	JPN	PAL	EU
R906	NOT_USE	1M	27K	27K
R910	39	680	1K	1.5K
R912	39	0	0	0
R916	NOT_USE	22K	33K	33K
R917	5.6K	18K	18K	22K
D912	EX0601GE	EX0646GE	EX0645GE	EX0645GE
C914	3300P	1500P	1500P	1500P
C911	4700P	5600P	2700P	2700P
IC901	RH-FX0034CEZZ	RH-FX0034CEZZ	RH-FX0001AJZZ	RH-FX0001AJZZ

ORIGINAL PARTS	SUBSITITUTE PARTS
2SA812-M5	2SA1530ARS, 2SA1037KQ
2SC1623L5	2SC3052EF, 2SC2412KQ
KRA102S	DTA114EKA, UN2111
KRA103S	DTA124EKA, UN2112
KRA104S	DTA144EKA, UN2113
KRC102S	DTC114EKA, UN2211
KRC103S	DTC124EKA, UN2212
KRC104S	DTC144EKA, UN2213

*9	PAL	FRANCE	EU
D971	EX0613GE	EX0720GE	EX0720GE
R971	470	270	220
R973	3.3K	5.6K	5.6K

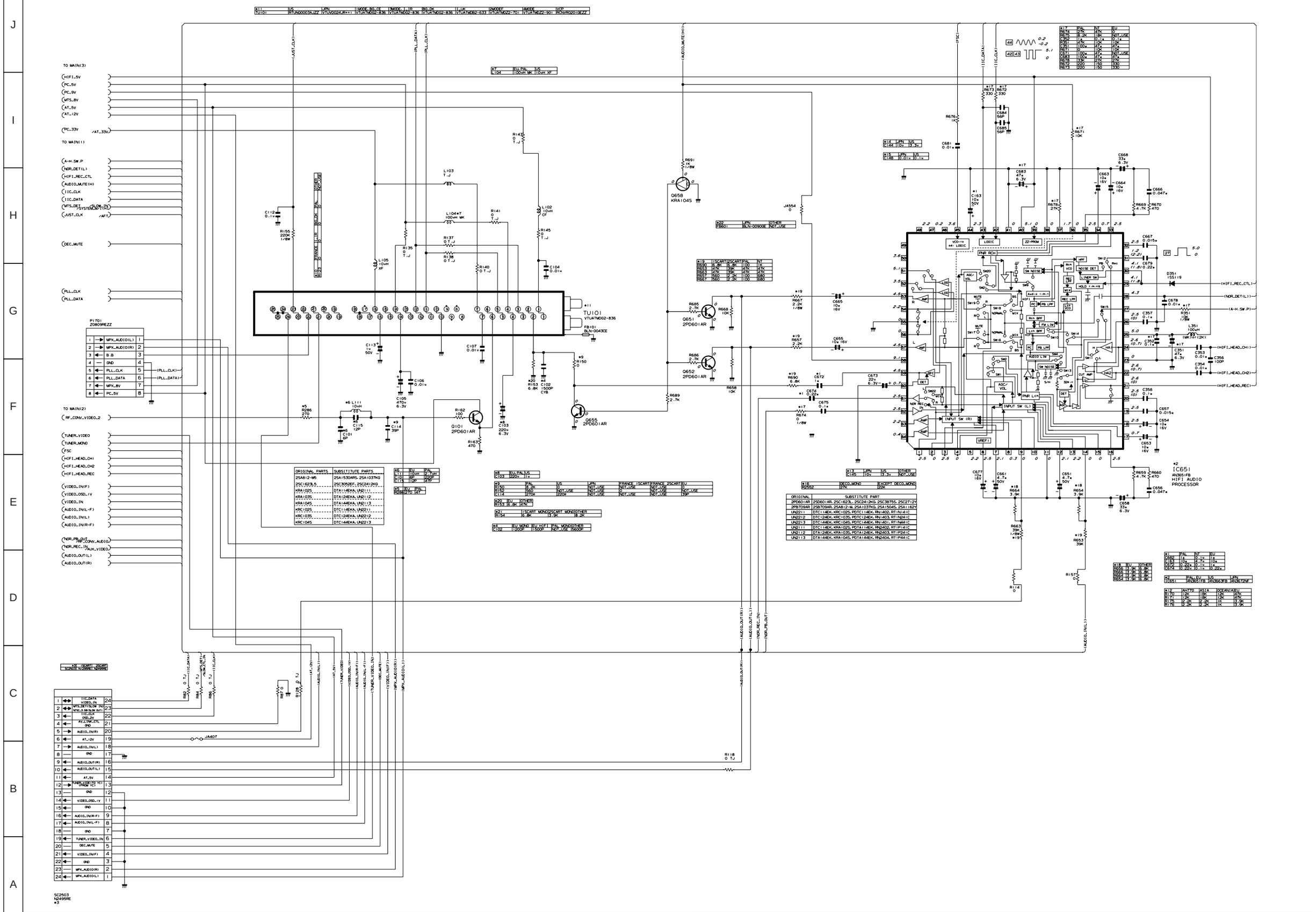
*5	US	JPN	ASIA	OCEANIA	EU	VCP
R931	1K	1K	560	390	560	560
R938	0	0	0	0	10	0
R936	1K	820	100	100	100	100
R930	3.3K	3.9K	1K	820	1K	1K
R932	100	100	470	470	330	470
R933	1K	1K	1.2K	1.2K	1.2K	1.2K
R934	1K	1K	1.5K	1.5K	1.5K	1.5K
R942	NOT_USE	180K	100K	100K	100K	100K
FB931	0	0	N-0090GE	N-0090GE	N-0043CE	N-0090GE

* VOLTAGE MEASUREMENT MODE
PB ..... Parentheses ( )
REC ... Without Parentheses

* SPANNUNGSMESSMETHODE
WIEDERGABE..... Runde Klammern ( )
AUFNAHME .....Ohne runde Klammern

VC-GH61GM/SM,GH611GM
VC-GH60SM,GH600SM,GH601SM
VC-FH310GM/SM

MAIN CIRCUIT(4) / HAUPTSCHALTUNG (4)



ORIGINAL PARTS	SUBSTITUTE PARTS
2SA812-M5	2SA1530ARS, 2SA1037KQ
2SC1623L5	2SC3052EF, 2SC2412KQ
KRA102S	DTA114EKA, UN2111
KRA103S	DTA124EKA, UN2112
KRA104S	DTA144EKA, UN2113
KRC102S	DTC114EKA, UN2211
KRC103S	DTC124EKA, UN2212
KRC104S	DTC144EKA, UN2213

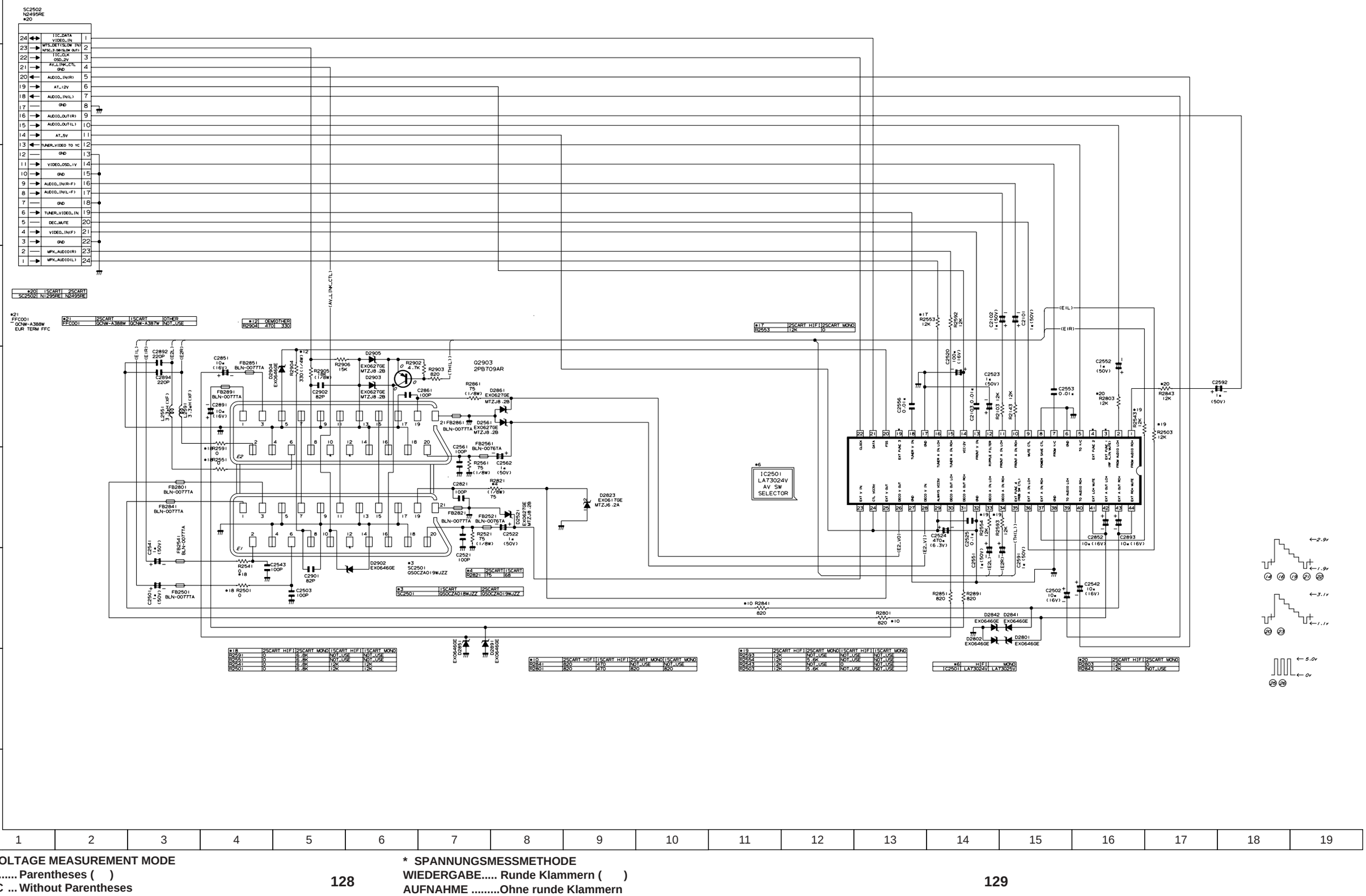
ORIGINAL	SUBSTITUTE PART
2PD601AR	2SD601AR, 2SC1623L, 2SC2412KQ, 2SC3875S, 2SC2712Y
2PB709AR	2SB709AR, 2SA812-M, 2SA1037KQ, 2SA1504S, 2SA1162Y
UN2211	DTC114EK, KRC102S, PDTC114EK, RN1402, RT1N141C
UN2212	DTC124EK, KRC103S, PDTC124EK, RN1403, RT1N241C
UN2213	DTC144EK, KRC104S, PDTC144EK, RN1401, RT1N441C
UN2111	DTC114EK, KRA102S, PDTA114EK, RN2402, RT1P141C
UN2112	DTA124EK, KRA103S, PDTA124EK, RN2403, RT1P241C
UN2113	DTA144EK, KRA104S, PDTA144EK, RN2404, RT1P441C

* VOLTAGE MEASUREMENT MODE
PB ..... Parentheses ( )
REC ... Without Parentheses

* SPANNUNGSMESSMETHODE
WIEDERGABE..... Runde Klammern ( )
AUFNAHME .....Ohne runde Klammern

VC-GH61GM/SM,GH611GM
VC-GH60SM,GH600SM,GH601SM
VC-FH310GM/SM

EUR-TERM CIRCUIT / EUR-TERM-SCHALTUNG

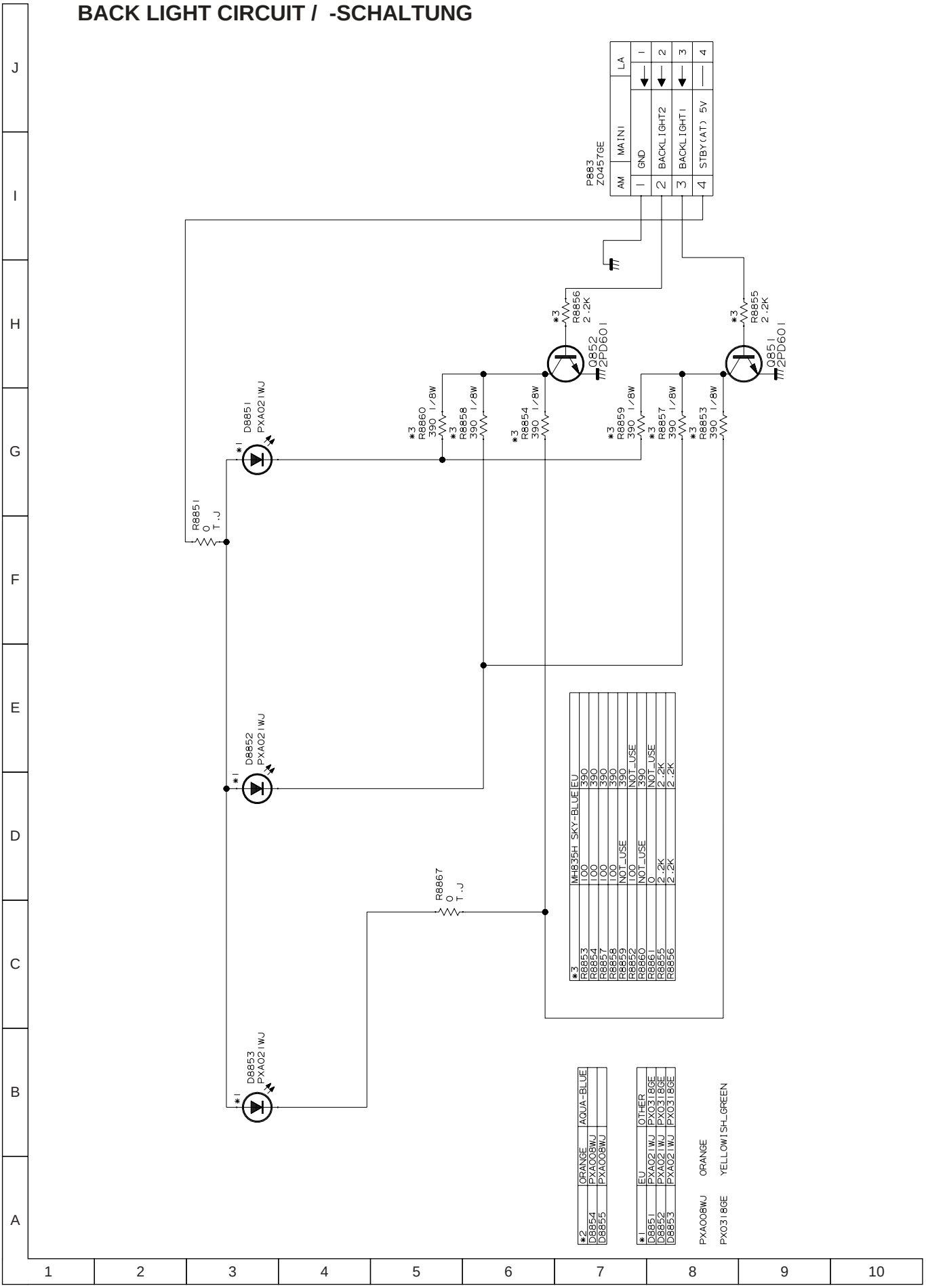


1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

* VOLTAGE MEASUREMENT MODE
PB ..... Parentheses ( )
REC ... Without Parentheses

* SPANNUNGSMESSMETHODE
WIEDERGABE..... Runde Klammern ( )
AUFNAHME .....Ohne runde Klammern

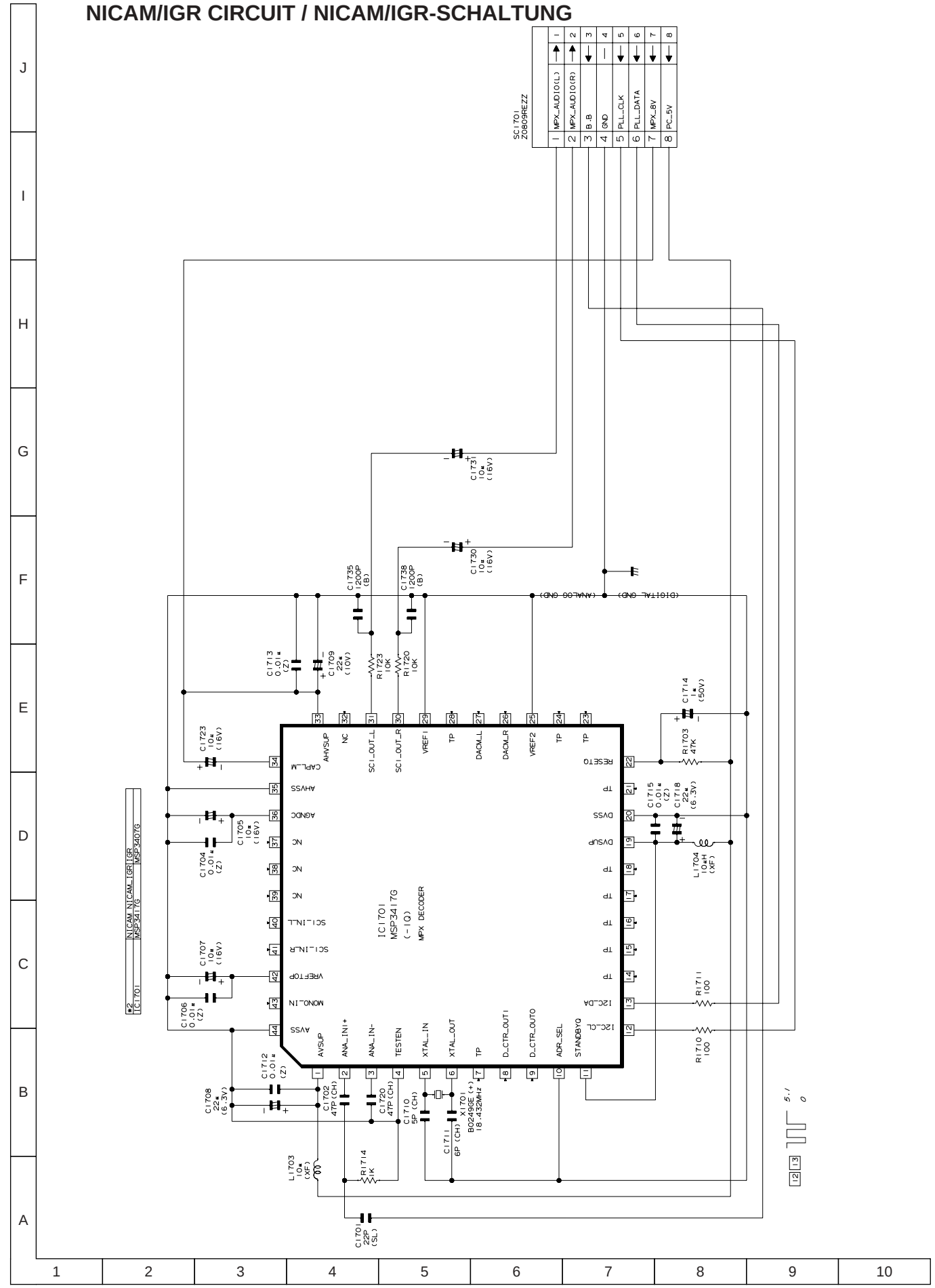
BACK LIGHT CIRCUIT / -SCHALTUNG



*** VOLTAGE MEASUREMENT MODE**
PB ..... Parentheses ( )
REC ... Without Parentheses

*** SPANNUNGSMESSMETHODE**
WIEDERGABE..... Runde Klammern ( )
AUFNAHME .....Ohne runde Klammern

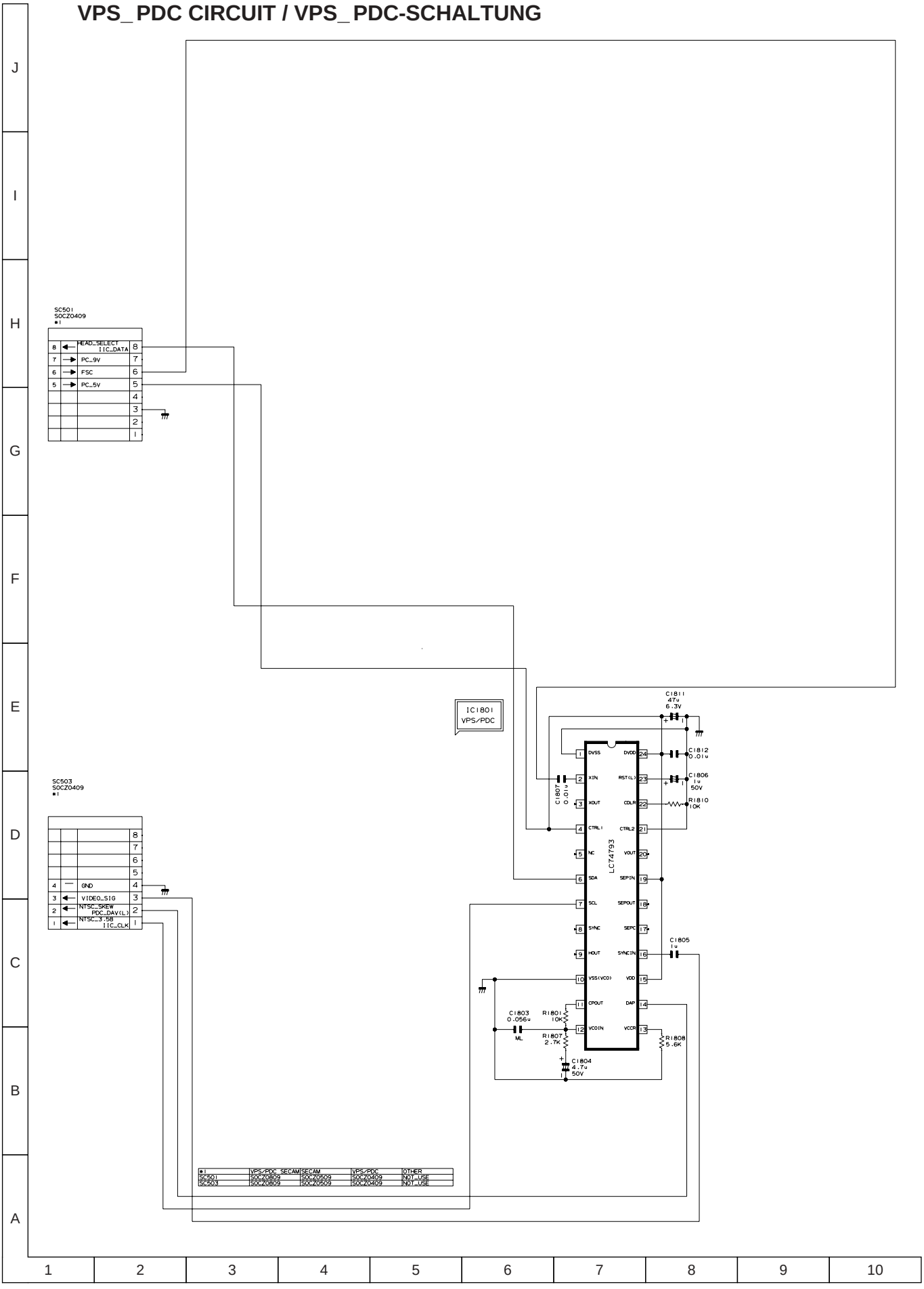
NICAM/IGR CIRCUIT / NICAM/IGR-SCHALTUNG



*** VOLTAGE MEASUREMENT MODE**
PB ..... Parentheses ( )
REC ... Without Parentheses

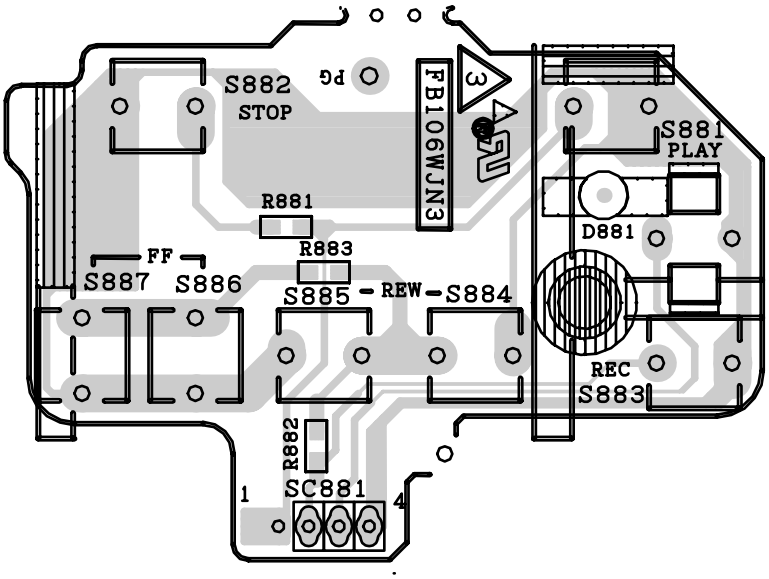
*** SPANNUNGSMESSMETHODE**
WIEDERGABE..... Runde Klammern ( )
AUFNAHME .....Ohne runde Klammern

VPS_ PDC CIRCUIT / VPS_ PDC-SCHALTUNG

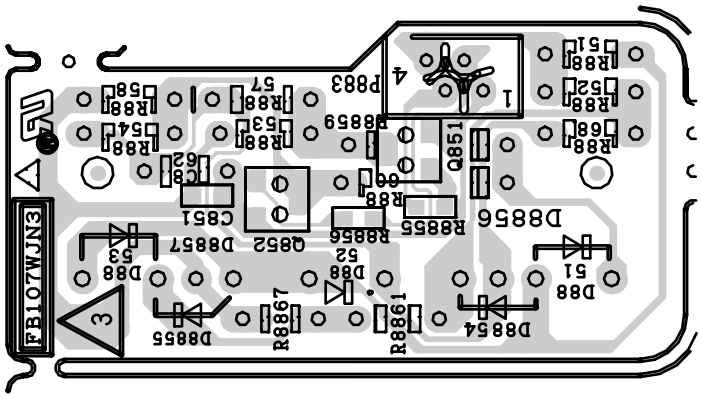


PWB FOIL PATTERN / LEITERPLATTENFOLIENMUSTER

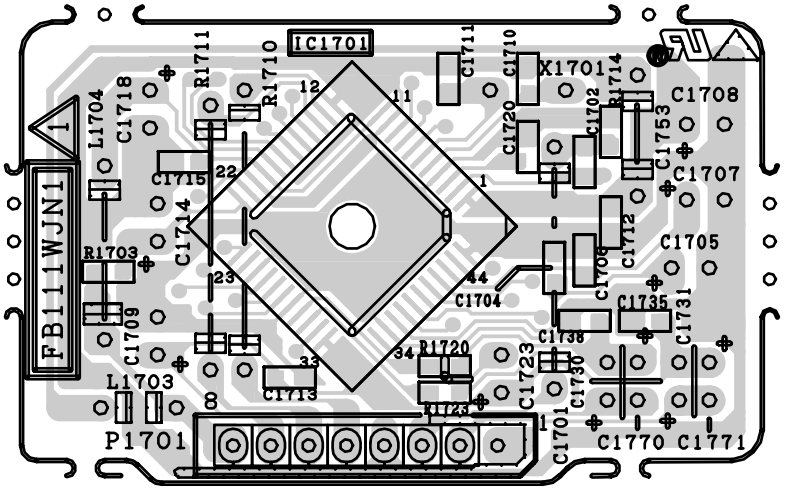
OPERATION PWB / BEDIENUNGS LEITERPLATTE



BACK LIGHT PWB / -LEITERPLATTE

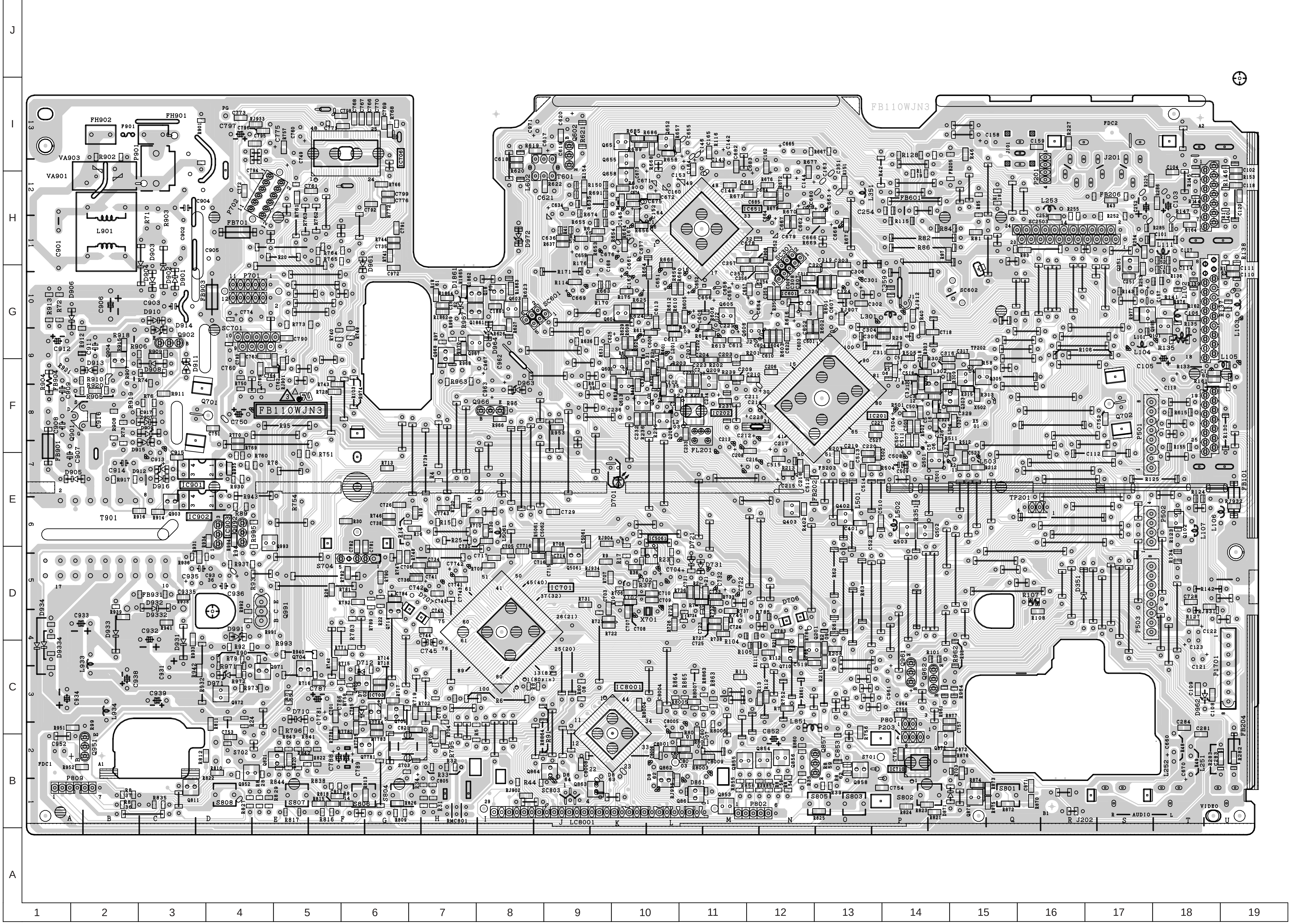


NICAM/IGR PWB / NICAM/IGR-LEITERPLATTE

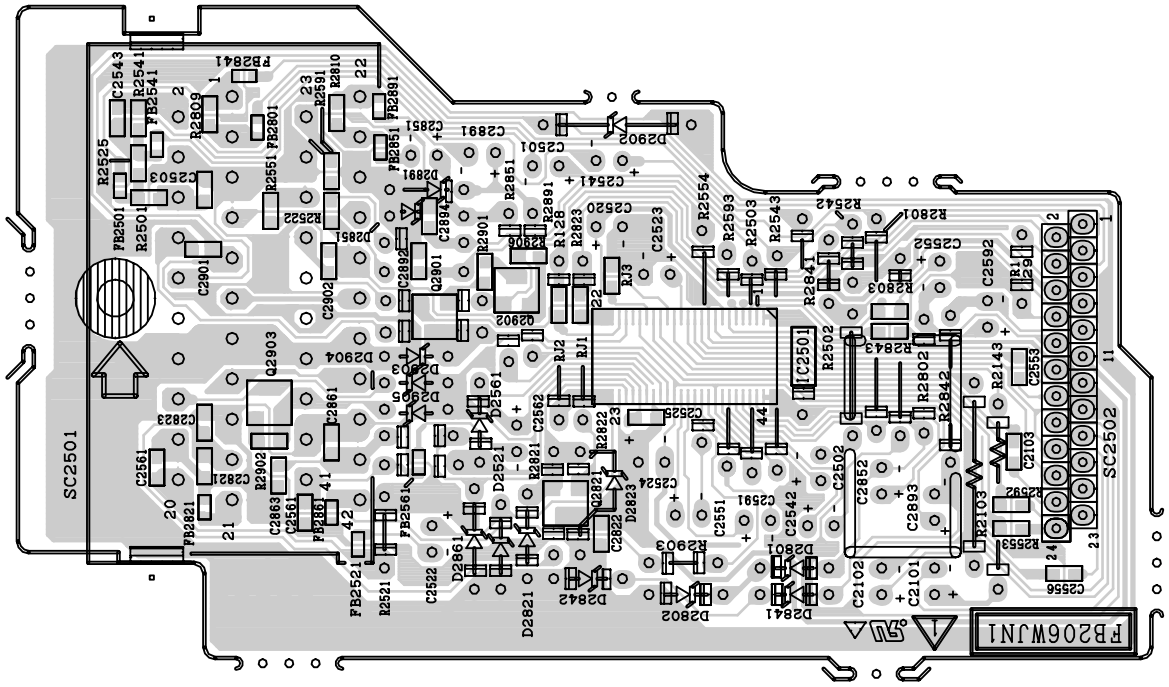


VC-GH61GM/SM,GH611GM
VC-GH60SM,GH600SM,GH601SM
VC-FH310GM/SM

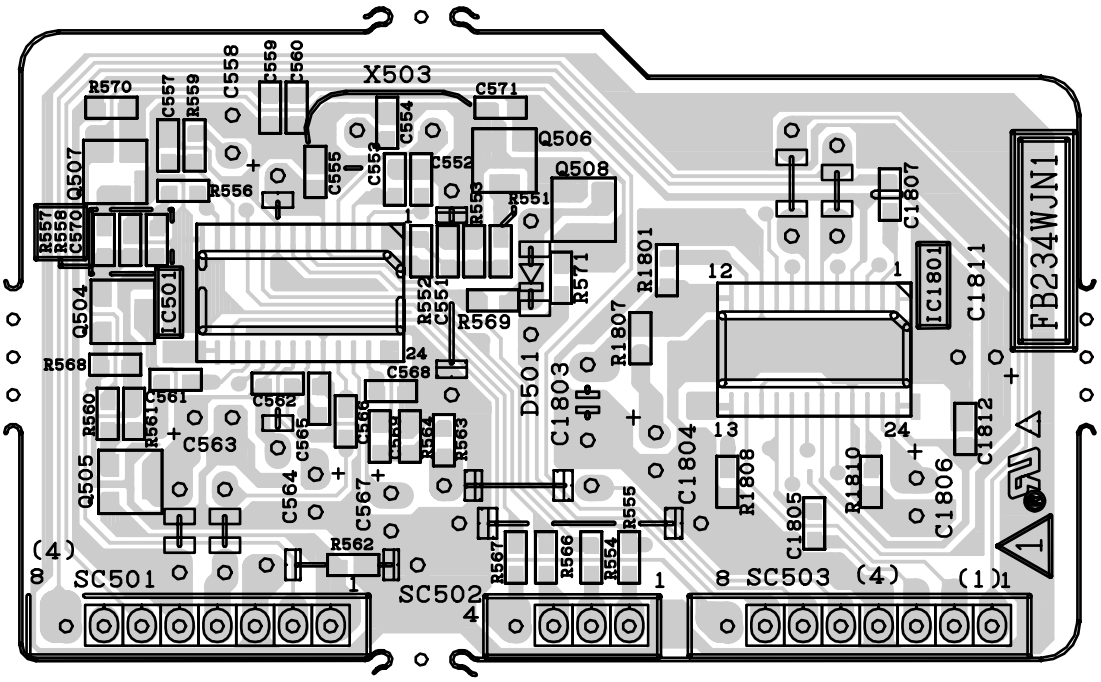
MAIN PWB / HAUPTLEITERPLATTE



EUR-TERM PWB / EUR-TERM-LEITERPLATTE



VPS_PDC/SECAM PWB / VPS_PDC-SECAM-LEITERPLATTE



10. REPLACEMENT PARTS LIST/ ERSATZTEILLISTE
PARTS REPLACEMENT/ EXPLOSIONSDARSTELLUNGEN

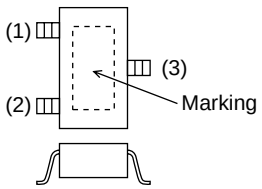
Parts marked with " ⚠ " are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

" HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NUMBER **2. REF. NO.**
3. PART NO. **4. DESCRIPTION**
5. PRICE CODE

HOW TO IDENTIFY CHIP TRANSISTORS AND DIODES BY ITS MARKING



(1) Base/Input
(2) Emitter/Ground
(3) Collector/Output

Fig. 1

Package	Marking	Parts No.	Code
Fig. 1	FQ	VS2SA1037KQ-1	AA
Fig. 1	BQ	VS2SC2412KQ-1	AA
Fig. 1	16	VSDTA144EK/-1	AC
Fig. 1	15	VSDTA124EK/-1	AB
Fig. 1	25	VSDTC124EK/-1	AB

MARK ★: SPARE PARTS-DELIVERY SECTION

Ref. No.	Part No.	★	Description	Code

PRINTED WIRING BOARD ASSEMBLIES
(NOT REPLACEMENT ITEM)

DUNTKB106TEX1	-	Operation Unit (except FH310GM/SM)	—
DUNTKB106TEX2	-	Operation Unit(FH310GM/SM)	—
DUNTKB107TEX1	-	Back Light Unit	—
DUNTKB110TEX2	-	Main Unit (GH61GM,GH611GM)	—
DUNTKB110TEX3	-	Main Unit (GH61SM)	—
DUNTKB110TEX4	-	Main Unit (FH310GM)	—
DUNTKB110TEX5	-	Main Unit (FH310SM)	—
DUNTKB110TEXC	-	Main Unit(GH60SM,GH601SM)	—
DUNTKB110TEXR	-	Main Unit (GH600SM)	—
DUNTKB111TEV3	-	NICAM/IGR Unit(FH310SM, GH60SM,GH601SM,GH61SM)	—
DUNTKB111TEV4	-	IGR Unit (FH310GM, GH600SM,GH61GM,GH611GM)	—
DUNTKB206TEV1	-	EUR-TERM Unit	—
DUNTKB234TEV1	-	VPS_ PDC/SECAM Unit (FH310GM/SM,GH61GM/SM, GH611GM)	—

Ref. No.	Part No.	★	Description	Code

DUNTKB110TEX2/X3/X4/X5/XC/XR
MAIN Unit

TUNER

TU101	VTUATMDG2-836	V	VHF Tuner	

INTEGRATED CIRCUITS

IC201	VHIHA8617F/-1	V	HA118617F	AX
IC601	VHITC4S66F/-1Y	V	TC4S66F	AD
IC651	VHIAN3651FB-1	V	AN3651FBP	AU
IC701	RH-iXA044WJZZQ	V	MN101D06GST (FH310GM /SM,GH61GM/SM,GH611GM)	
IC701	RH-iXA045WJZZQ	V	MN101D06FTF (GH60SM, GH600SM,GH601SM)	
IC703	VHIPST3225N1EY	V	PST3225	AD
IC710	VHiBR2416E2-1Y	V	BR24C16F (FH310GM /SM,GH61GM/SM,GH611GM)	AK
IC710	VHiBR24C04F-1Y	V	BR24C04F-WE2(GH60SM, GH600SM,GH601SM)	AG
IC903	VHIKIA431//-1+	V	KIA431	AE
IC8001	VHIBU9716BK-1Q	V	BU9716BK	AM

TRANSISTORS

Q101	VS2PD601AR/-1Y	V	2PD601AR	AB
Q201	VS2PD601AR/-1Y	V	2PD601AR	AB
Q251	VS2PB709AR/-1Y	V	2PB709AR	AB
Q303	VS2PD601AR/-1Y	V	2PD601AR (FH310GM /SM,GH61GM/SM,GH611GM)	AB
Q304	VS2PD601AR/-1Y	V	2PD601AR (FH310GM /SM,GH61GM/SM,GH611GM)	AB
Q305	VSKRA104S//-1Y	V	KRA104S (FH310GM /SM,GH61GM/SM,GH611GM)	AA
Q401	VSKRC102S//-1Y	V	KRC102S (FH310GM /SM,GH61GM/SM,GH611GM)	AA
Q402	VS2SK1826++-1Y	V	2SK1826++ (FH310GM /SM,GH61GM/SM,GH611GM)	AC
Q403	VSKRC102S//-1Y	V	KRC102S (FH310GM /SM,GH61GM/SM,GH611GM)	AA
Q502	VSKRA102S//-1Y	V	KRA102S	AA
Q503	VSKRC102S//-1Y	V	KRC102S	AA
Q601	VS2PB709AR/-1Y	V	2PB709AR	AB
Q602	VS2SC3203Y/-1+	V	2SC3203Y	
Q603	VS2PD601AR/-1Y	V	2PD601AR	AB
Q604	VSKRA103S//-1Y	V	KRA103S	AA
Q605	VS2PD601AR/-1Y	V	2PD601AR	AB
Q606	VS2PD601AR/-1Y	V	2PD601AR	AB
Q613	VS2PD601AR/-1Y	V	2PD601AR	AB
Q651	VS2PD601AR/-1Y	V	2PD601AR	AB
Q652	VS2PD601AR/-1Y	V	2PD601AR	AB
Q655	VS2PD601AR/-1Y	V	2PD601AR	AB
Q658	VSKRA104S//-1Y	V	KRA104S	AA
Q704	VS2PB709AR/-1Y	V	2PB709AR	AB
Q705	VS2PD601AR/-1Y	V	2PD601AR	AB
Q706	VS2PB709AR/-1Y	V	2PB709AR	AB
Q710	VS2PD601AR/-1Y	V	2PD601AR	AB
Q711	VS2PD601AR/-1Y	V	2PD601AR	AB
⚠ Q901	VS2SK2848//-1	V	2SK2848	AH
⚠ Q902	VS2SC2001LK-1+	V	2SC2001LK	AA
Q903	VS2PD601AR/-1Y	V	2PD601AR	AB
Q961	VS2SD471-KL1E+	V	2SD471-KL	AC
Q966	VS2SB1443TV1E+	V	2SB1443TV	AE
Q967	VSKRC102S//-1Y	V	KRC102S	AA
Q971	VS2PB709AR/-1Y	V	2PB709AR	AB
Q972	VSKRC103S//-1Y	V	KRC103S	AA
Q992	VS2SB1443TV1E+	V	2SB1443TV	AE
Q993	VSKRC102S//-1Y	V	KRC102S	AA
Q1861	VSKRC102S//-1Y	V	KRC102S (FH310GM/SM)	AA
Q1862	VS2PD601AR/-1Y	V	2PD601AR (FH310GM/SM)	AB
Q1865	VS2PD601AR/-1Y	V	2PD601AR (FH310GM/SM)	AB

DIODES AND LED' S

D351	VHD1SS119//-1Y	V	1SS119	AA
D701	RH-PX0270GEZZ+	V	PhotoDiode	AC
D702	VHD1SS119//-1Y	V	1SS119	AA

Ref. No.	Part No.	★	Description	Code
D706	RH-PX0252GEZZ	V	GP1S563	AF
D707	RH-PX0252GEZZ	V	GP1S563	AF
D710	VHD1SS119//-1Y	V	1SS119 (FH310GM/SM, GH61GM/SM,611GM)	AA
D712	VHD1SS119//-1Y	V	1SS119	AA
D721	VHD1SS119//-1Y	V	1SS119	AA
D731	VHD1SS119//-1Y	V	1SS119	AA
⚠ D901	VHDRL1N4005-1Y	V	RL1N4005	
⚠ D902	VHDRL1N4005-1Y	V	RL1N4005	
⚠ D903	VHDRL1N4005-1Y	V	RL1N4005	
⚠ D904	VHDRL1N4005-1Y	V	RL1N4005	
D905	VHDERA2206/-1Y	V	ERA2206	AC
D906	VHDRL1N4005-1Y	V	RL1N4005	
D908	VHD1SS119//-1Y	V	1SS119	AA
D910	VHD1SS119//-1Y	V	1SS119	AA
D911	RH-EX0613GEZZY	V	Zener Diode	
D912	RH-EX0645GEZZY	V	Zener Diode	AB
D914	RH-EX0622GEZZY	V	Zener Diode	
D916	VHD1SS244//-1Y	V	1SS244	AB
⚠ D931	VHD10ELS4//-1Y	V	10ELS4	AD
⚠ D933	VHD15DF1FC/1E	V	15DF1FC	AD
⚠ D934	VHDSB240L++1E	V	SB240L++	AD
D961	VHD1SS119//-1Y	V	1SS119	AA
D962	RH-EX0627GEZZY	V	Zener Diode	AA
D963	RH-EX0631GEZZY	V	Zener Diode	AA
D971	RH-EX0720GEZZY	V	Zener Diode	AB
D972	RH-EX0677GEZZY	V	Zener Diode	
D1861	VHD1SS119//-1Y	V	1SS119 (FH310GM/SM)	AA
⚠ D9332	VHD15DF1FC/1E	V	15DF1FC	AD
IC901	RH-FX0001AJZZ	V	TCET1103G	AE
IC902	RH-FX0001AJZZ	V	TCET1103G	AE
Q701	RH-PX0233GEZZ	V	PT493FL2	AD
Q702	RH-PX0233GEZZ	V	PT493FL2	AD

CRYSTALS

X502	RCRSB0232GEZZ+	V	Crystal	AG
X701	RCRSB0205GEZZ+	V	Crystal	AM
X702	RCRSB0138GEZZ	V	Crystal (FH310GM/SM, GH600SM,GH601SM, GH60SM)	AD
X702	RCRSB0138GEN1	V	Crystal (GH61GM/SM,611GM)	AD

COILS AND TRANSFORMERS

L102	VP-CF100K0000Y	V	Peaking 10µH	AB
L104	VP-MK101K0000+	V	Peaking 100µH	
L111	VP-XF100J0000Y	V	Peaking 10µH	AB
L201	VP-XF221K0000+	V	Peaking 220µH	AB
L251	VP-XF100K0000Y	V	Peaking 10µH	
L252	VP-XF100K0000Y	V	Peaking 10µH	
L301	VP-MK101K0000+	V	Peaking 100µH	
L302	VP-XF180K0000Y	V	Peaking 18µH	
L304	VP-XF120K0000+	V	Peaking 12µH(FH310GM /SM,GH61GM/SM,GH611GM)	AB
L351	VP-MK101K0000+	V	Peaking 100µH	
L501	VP-XF560K0000+	V	Peaking 56µH	AB
L502	VP-XF101K0000+	V	Peaking 100µH	AB
L503	VP-XF120K0000+	V	Peaking 12µH	AB
L602	VP-DF221K0000Y	V	Peaking 220µH	AB
⚠ L901	RCILF0009AJZZ	V	Coil	AK
L933	RCILP0171CEZZ+	V	Coil	AD
L934	RCILP0175CEZZ+	V	Coil	AD
R133	VP-XF100K0000Y	V	Peaking 10µH	
T601	RTRNH0098GEZZ	V	OSC. Transformer	AE
⚠ T901	RTRNWA047WJZZ	V	Transformer	

CAPACITORS

C101	VCCCCY1HH6R0DS	V	6p	50V	Ceramic	AA
C102	VCKYCY1HB152KS	V	1500p	50V	Ceramic	
C103	VCEA9A0JW227M+	V	220	6.3V	Electrolytic	AA
C104	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C105	VCEA0A0JW477M+	V	470	6.3V	Electrolytic	AC
C106	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C107	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C112	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C113	VCEA9M1HW105M+	V	1	50V	Electrolytic	AB
C114	VCCCCY1HH390JS	V	39p	50V	Ceramic	
C115	VCCSD41HL120JY	V	12p	50V	Ceramic	
C163	VCEA9M1CW106M+	V	10	16V	Electrolytic	
C201	VCEA9M0JW476M+	V	47	6.3V	Electrolytic	AB
C202	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C203	VCCCCY1HH151JS	V	150p	50V	Ceramic	
C204	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C205	VCCCCY1HH220JS	V	22p	50V	Ceramic	
C206	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C207	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C208	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C209	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C210	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C211	VCEA9M1HW335M+	V	3.3	50V	Electrolytic	AB
C212	VCEA9M1CW106M+	V	10	16V	Electrolytic	
C213	VCEA9M1HW225M+	V	2.2	50V	Electrolytic	AB
C217	VCEA9M0JW476M+	V	47	6.3V	Electrolytic	AB
C218	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C219	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C220	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C221	VCEA9M1CW106M+	V	10	16V	Electrolytic	
C223	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C227	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C228	VCEA9M1HW105M+	V	1	50V	Electrolytic	AB
C253	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C281	VCCCCY1HH121JS	V	120p	50V	Ceramic	AA
C284	VCCCCY1HH101JS	V	100p	50V	Ceramic	
C301	VCEA9M0JW476M+	V	47	6.3V	Electrolytic	AB
C302	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C303	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C304	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C305	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C306	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C307	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C308	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C309	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C310	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C311	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C313	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C316	VCCCCY1HH220JS	V	22p	50V	Ceramic	
C317	VCCCCY1HH120JS	V	12p	50V	Ceramic	AA
C318	VCCCCY1HH220JS	V	22p	50V	Ceramic	
C319	VCCCCY1HH220JS	V	22p	50V	Ceramic	
C319	VCCCCY1HH3R0CS	V	3p	50V	Ceramic (FH310GM/SM,GH61GM/SM, GH611GM)	AA
C320	VCCCCY1HH120JS	V	12p	50V	Ceramic (GH60SM,GH600SM, GH601SM)	AA
C320	VCCCCY1HH3R0CS	V	3p	50V	Ceramic (FH310GM/SM,GH61GM/SM, GH611GM)	AA
C320	VCCCCY1HH120JS	V	12p	50V	Ceramic (GH60SM,GH600SM, GH601SM)	AA
C321	VCKYCY1HB102KS	V	1000p	50V	Ceramic	
C326	VCCCCY1HH220JS	V	22p	50V	Ceramic (FH310GM/SM,GH61GM/SM, GH611GM)	
C327	VCCCCY1HH150JS	V	15p	50V	Ceramic (FH310GM/SM,GH61GM/SM, GH611GM)	
C328	VCCCCY1HH150JS	V	15p	50V	Ceramic (FH310GM/SM,GH61GM/SM, GH611GM)	
C329	VCKYCY1CF104ZS	V	0.1	16V	Ceramic (FH310GM/SM,GH61GM/SM, GH611GM)	
C351	VCEA9M0JW476M+	V	47	6.3V	Electrolytic	AB
C352	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C353	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C354	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C356	VCCCCY1HH101JS	V	100p	50V	Ceramic	
C357	VCKYCY1CB104KS	V	0.1	16V	Ceramic	
C358	VCKYCY1CB104KS	V	0.1	16V	Ceramic	

Ref. No.	Part No.	★			Description	Code
C401	VCKYCY1HF103ZS	V	0.01	50V	Ceramic (FH310GM/SM,GH61GM/SM,GH611GM)	
C501	VCEA9M0JW107M+	V	100	6.3V	Electrolytic	AB
C502	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C503	VCKYCY1CB104KS	V	0.1	16V	Ceramic	
C504	VCEA9M1HW225M+	V	2.2	50V	Electrolytic	AB
C505	VCKYCY1EB223KS	V	0.022	25V	Ceramic	AA
C506	VCEA9M1HW474M+	V	0.47	50V	Electrolytic	AB
C507	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C508	VCEA9M1HW475M+	V	4.7	50V	Electrolytic	AB
C509	VCKYD41CY103NY	V	0.01	16V	Ceramic	
C510	VCCCCY1HH270JS	V	27p	50V	Ceramic	AA
C511	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C512	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C513	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C514	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C515	VCCCCY1HH331JS	V	330p	50V	Ceramic	AA
C516	VCEA9M1HW105M+	V	1	50V	Electrolytic	AB
C517	VCEA9M1HW335M+	V	3.3	50V	Electrolytic	AB
C518	VCKYCY1CB333KS	V	0.033	16V	Ceramic	AA
C519	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C521	VCCCCY1HH5R0CS	V	5p	50V	Ceramic	
C522	VCCCCY1HH120JS	V	12p	50V	Ceramic	AA
C601	VCKYCY1HB331KS	V	330p	50V	Ceramic	
C602	VCKYCY1EB123KS	V	0.012	25V	Ceramic	
C603	VCEA9M1CW226M+	V	22	16V	Electrolytic	AB
C604	VCKYCY1HB102KS	V	1000p	50V	Ceramic	
C605	VCEA9M1HW335M+	V	3.3	50V	Electrolytic	AB
C606	VCEA9M1CW106M+	V	10	16V	Electrolytic	
C607	VCEA9M1HW475M+	V	4.7	50V	Electrolytic	AB
C608	VCEA9M0JW226M+	V	22	6.3V	Electrolytic	AB
C610	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C611	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C613	VCKYCY1HB682KS	V	6800p	50V	Ceramic	
C617	VCEA9M1CW476M+	V	47	16V	Electrolytic	AB
C618	VCKYCY1EB103KS	V	0.01	25V	Ceramic	
C619	VCKYCY1EB103KS	V	0.01	25V	Ceramic	
C620	VCEA9M1CW106M+	V	10	16V	Electrolytic	
C621	VCQPYA2AA562J+	V	5600p	100V	AC	
C622	VCKYCY1HB102KS	V	1000p	50V	Ceramic	
C625	VCEA9M1HW474M+	V	0.47	50V	Electrolytic	AB
C626	VCKYCY1HB682KS	V	6800p	50V	Ceramic	
C630	VCCCCY1HH101JS	V	100p	50V	Ceramic	
C631	VCCCCY1HH101JS	V	100p	50V	Ceramic	
C632	VCCCCY1HH221JS	V	220p	50V	Ceramic	AA
C634	VCEA9M1HW475M+	V	4.7	50V	Electrolytic	AB
C636	VCKYCY1HB222KS	V	2200p	50V	Ceramic	
C651	VCEA9M1HW475M+	V	4.7	50V	Electrolytic	AB
C653	VCEA9M1CW106M+	V	10	16V	Electrolytic	
C654	VCEA9M1CW106M+	V	10	16V	Electrolytic	
C655	VCEA9M1CW106M+	V	10	16V	Electrolytic	
C656	VCKYCY1CB473KS	V	0.047	16V	Ceramic	
C657	VCKYCY1EB153KS	V	0.015	25V	Ceramic	
C658	VCEA9M0JW336M+	V	33	6.3V	Electrolytic	AB
C661	VCEA9M1HW475M+	V	4.7	50V	Electrolytic	AB
C663	VCEA9M1CW106M+	V	10	16V	Electrolytic	
C664	VCEA9M1CW106M+	V	10	16V	Electrolytic	
C665	VCEA9M1CW106M+	V	10	16V	Electrolytic	
C666	VCKYCY1CB473KS	V	0.047	16V	Ceramic	
C667	VCKYCY1EB153KS	V	0.015	25V	Ceramic	
C668	VCEA9M0JW336M+	V	33	6.3V	Electrolytic	AB
C672	VCKYCY0JF105ZS	V	1	6.3V	Ceramic	AB
C673	VCEA9M0JW226M+	V	22	6.3V	Electrolytic	AB
C674	VCKYCY1CF224ZS	V	0.22	16V	Ceramic	
C675	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C677	VCEA9M1CW106M+	V	10	16V	Electrolytic	
C678	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C679	VCKYCY1CF224ZS	V	0.22	16V	Ceramic	
C681	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C683	VCEA9M1CW476M+	V	47	16V	Electrolytic	AB
C684	VCCCCY1HH560JS	V	56p	50V	Ceramic	
C685	VCCCCY1HH560JS	V	56p	50V	Ceramic	
C702	VCEA9M0JW476M+	V	47	6.3V	Electrolytic	AB
C703	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C704	VCEA9M0JW227M+	V	220	6.3V	Electrolytic	AB
C705	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C706	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C707	VCCCCY1HH7R0DS	V	7.0p	50V	Ceramic	
C708	VCCCCY1HH100DS	V	10p	50V	Ceramic	
C709	VCCCCY1HH180JS	V	18p	50V	Ceramic	
C710	VCCCCY1HH180JS	V	18p	50V	Ceramic	
C713	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C715	VCCCCY1HH101JS	V	100p	50V	Ceramic	
C716	VCKYCY0JB105KY	V	1	6.3V	Ceramic	AC
C717	VCKYCY0JF105ZS	V	1	6.3V	Ceramic	AB
C718	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C721	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C722	VCEA9M0JW107M+	V	100	6.3V	Electrolytic	AB
C723	VCKYCY1HF473ZS	V	0.047	50V	Ceramic	AA
C724	VCKYCY1HF473ZS	V	0.047	50V	Ceramic	AA
C725	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C726	VCKYCY1HB102KS	V	1000p	50V	Ceramic	
C728	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C729	VCKYCY1HB222KS	V	2200p	50V	Ceramic	
C730	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C731	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C732	VCEA9M0JW226M+	V	22	6.3V	Electrolytic	AB
C733	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C734	VCKYCY1HB102KS	V	1000p	50V	Ceramic	
C735	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C736	VCCCCY1HH680JS	V	68p	50V	Ceramic	AA
C738	VCCCCY1HH221JS	V	220p	50V	Ceramic	AA
C741	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C742	VCEA9M0JW226M+	V	22	6.3V	Electrolytic	AB
C743	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C744	VCKYCY1HB222KS	V	2200p	50V	Ceramic	
C745	VCKYD41HB682KY	V	6800p	50V	Ceramic	AB
C750	VCEA2A1VW107M+	V	100	35V	Electrolytic	AC
C751	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C752	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C754	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C774	VCEA9M1CW336M+	V	33	16V	Electrolytic	AB
C783	VCKYCY1HB102KS	V	1000p	50V	Ceramic	
C784	VCKYCY1HB102KS	V	1000p	50V	Ceramic	
C785	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C786	VCEA9M1HW105M+	V	1	50V	Electrolytic	AB
C787	VCEA0A0JW108M+	V	1000	6.3V	Electrolytic	AC
C788	RC-EZ0426GEZZ	V	Capacitor (FH310GM/SM)			AG
C788	RC-EZ0425GEZZ	V	Capacitor (GH61GM/SM, 611GM)			AE
C791	VCKYCY1CF104ZS	V	0.1	16V	Ceramic	
C797	VCEA9A0JW476M+	V	47	6.3V	Electrolytic	AB
C805	VCEA9M0JW476M+	V	47	6.3V	Electrolytic	AB
⚠ C901	RC-FZ036SCEZZ	V	0.1	AC250V	M.Polypro	AC
⚠ C903	RC-KZ0105GEZZ	V	2200p	AC250V	Ceramic	AD
⚠ C906	RC-EZ0437GEZZ	V	68	400V	Electrolytic	AK
C907	VCFYAA2GA473K+	V	0.047	400V	M.Polypro	AE
C908	RC-KZ0112CEZZ+	V	100p	500V	Ceramic	AB
C911	VCQYTA1HM272J+	V	2700p	50V	Mylar	
C912	RC-EZ0661GEZZ+	V	1	400	Electrolytic	AD
C913	VCEA0M1HW226M+	V	22	50V	Electrolytic	
C914	VCQYTA1HM152J+	V	1500p	50V	Mylar	AA
⚠ C931	VCEA0M1JW476M+	V	47	63V	Electrolytic	AC
⚠ C932	VCEA0A1VW477M+	V	470	35V	Electrolytic	AB
⚠ C933	VCEA0A1CW228M+	V	2200	16V	Electrolytic	
⚠ C934	RC-EZ1075CEZZ	V	2200	10V	Electrolytic	AF
⚠ C938	VCEA0A1EW107M+	V	100	25V	Electrolytic	AC
⚠ C939	VCEA0A1AW477M+	V	470	10V	Electrolytic	AC
C961	VCEA9M1CW106M+	V	10	16V	Electrolytic	
C963	VCEA9M1CW476M+	V	47	16V	Electrolytic	AB
C967	VCEA9M1CW476M+	V	47	16V	Electrolytic	AB
C971	VCEA9M1HW105M+	V	1	50V	Electrolytic	AB
C1861	VCCCCY1HH221JS	V	220p	50V	Ceramic (FH310GM/SM)	AA
C1862	VCCCCY1HH221JS	V	220p	50V	Ceramic (FH310GM/SM)	AA
C8001	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C8002	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C8003	VCKYCY1HF103ZS	V	0.01	50V	Ceramic	
C8004	VCKYCY1HB102KS	V	1000p	50V	Ceramic	
C8005	VCEA9M1CW106M+	V	10	16V	Electrolytic	
C9335	VCEA9M1HW105M+	V	1	50V	Electrolytic	AB

Ref. No.	Part No.	★			Description	Code
C9336	VCEA9M1HW105M+	V	1	50V	Electrolytic	AB

RESISTORS

JA228	VRD-RA2BE331JY	V	330	1/8W	Carbon	
RJ902	VRS-CY1JF000JS	V	0	1/16W	Metal Oxide	
RJ904	VRS-CY1JF000JS	V	0	1/16W	Metal Oxide	
RJ907	VRS-CY1JF000JS	V	0	1/16W	Metal Oxide	
RJ908	VRS-CY1JF000JS	V	0	1/16W	Metal Oxide	
RJ912	VRS-CY1JF000JS	V	0	1/16W	Metal Oxide	
RJ931	VRS-CY1JF000JS	V	0	1/16W	Metal Oxide	
RJ932	VRS-CY1JF000JS	V	0	1/16W	Metal Oxide	
R19	VRS-CY1JF000JS	V	0	1/16W	Metal Oxide	
R58	VRS-CY1JF000JS	V	0	1/16W	Metal Oxide (GH60SM,GH600SM,GH601SM)	
R81	VRS-CY1JF000JS	V	0	1/16W	Metal Oxide (FH310GM/SM,GH61GM/SM,GH611GM)	
R87	VRS-CY1JF000JS	V	0	1/16W	Metal Oxide (except FH310GM/SM)	
R104	VRD-RA2BE221JY	V	220	1/8W	Carbon	AA
R105	VRD-RA2BE221JY	V	220	1/8W	Carbon	AA
R111	VRS-CY1JF153JS	V	15k	1/16W	Metal Oxide	
R112	VRS-CY1JF153JS	V	15k	1/16W	Metal Oxide	
R114	VRS-CY1JF000JS	V	0	1/16W	Metal Oxide	
R153	VRS-CY1JF682JS	V	6.8k	1/16W	Metal Oxide	
R155	VRD-RA2BE224JY	V	220k	1/8W	Carbon	AA
R157	VRS-CY1JF000JS	V	0	1/16W	Metal Oxide	
R162	VRS-CY1JF101JS	V	100	1/16W	Metal Oxide	
R163	VRD-RA2BE471JY	V	470	1/8W	Carbon	
R201	VRS-CY1JF682JS	V	6.8k	1/16W	Metal Oxide	
R202	VRS-CY1JF182JS	V	1.8k	1/16W	Metal Oxide	
R203	VRS-CY1JF332JS	V	3.3k	1/16W	Metal Oxide (GH60SM,GH600SM,GH601SM)	
R203	VRS-CY1JF822JS	V	8.2k	1/16W	Metal Oxide (FH310GM/SM,GH61GM/SM,611GM)	
R207	VRS-CY1JF102JS	V	1k	1/16W	Metal Oxide	
R208	VRS-CY1JF471JS	V	470	1/16W	Metal Oxide	
R209	VRS-CY1JF472JS	V	4.7k	1/16W	Metal Oxide	
R210	VRS-CY1JF102JS	V	1k	1/16W	Metal Oxide	
R211	VRS-CY1JF153JS	V	15k	1/16W	Metal Oxide	
R212	VRS-CY1JF153JS	V	15k	1/16W	Metal Oxide	
R252	VRD-RA2EE331JY	V	330	1/4W	Carbon	
R253	VRS-CY1JF101JS	V	100	1/16W	Metal Oxide	
R254	VRS-CY1JF183JS	V	18k	1/16W	Metal Oxide	
R255	VRD-RA2BE331JY	V	330	1/8W	Carbon	
R282	VRS-CY1JF750JS	V	75	1/16W	Metal Oxide	
R286	VRS-CY1JF561JS	V	560	1/16W	Metal Oxide	
R301	VRS-CY1JF473JS	V	47k	1/16W	Metal Oxide	
R302	VRS-CY1JF681JS	V	680	1/16W	Metal Oxide	
R303	VRS-CY1JF392JS	V	3.9k	1/16W	Metal Oxide	
R309	VRS-CY1JF182JS	V	1.8k	1/16W	Metal Oxide (FH310GM/SM,GH61GM/SM,GH611GM)	
R312	VRS-CY1JF681JS	V	680	1/16W	Metal Oxide (FH310GM/SM,GH61GM/SM,GH611GM)	
R313	VRS-CY1JF333JS	V	33k	1/16W	Metal Oxide (FH310GM/SM,GH61GM/SM,GH611GM)	
R315	VRS-CY1JF682JS	V	6.8k	1/16W	Metal Oxide (FH310GM/SM,GH61GM/SM,GH611GM)	
R351	VRD-RA2BE103JY	V	10k	1/8W	Carbon	AA
R401	VRS-CY1JF562JS	V	5.6k	1/16W	Metal Oxide (FH310GM/SM,GH61GM/SM,GH611GM)	
R402	VRS-CY1JF472JS	V	4.7k	1/16W	Metal Oxide (FH310GM/SM,GH61GM/SM,GH611GM)	
R501	VRS-CY1JF102JS	V	1k	1/16W	Metal Oxide	
R502	VRS-CY1JF273JS	V	27k	1/16W	Metal Oxide	
R504	VRS-CY1JF221JS	V	220	1/16W	Metal Oxide	
R505	VRS-CY1JF224JS	V	220k	1/16W	Metal Oxide	
R601	VRS-CY1JF183JS	V	18k	1/16W	Metal Oxide	
R602	VRS-CY1JF274JS	V	270k	1/16W	Metal Oxide	AA
R603	VRS-CY1JF181JS	V	180	1/16W	Metal Oxide	
R604	VRS-CY1JF473JS	V	47k	1/16W	Metal Oxide	
R605	VRS-CY1JF153JS	V	15k	1/16W	Metal Oxide	
R606	VRS-CY1JF333JS	V	33k	1/16W	Metal Oxide	
R608	VRS-CY1JF122JS	V	1.2k	1/16W	Metal Oxide	
R609	VRS-CY1JF562JS	V	5.6k	1/16W	Metal Oxide	
R610	VRS-CY1JF272JS	V	2.7k	1/16W	Metal Oxide	
R611	VRS-CY1JF000JS	V	0	1/16W	Metal Oxide	
R616	VRS-CY1JF183JS	V	18k	1/16W	Metal Oxide	
R618	VRS-CY1JF473JS	V	47k	1/16W	Metal Oxide	
R619	VRS-CY1JF470JS	V	47	1/16W	Metal Oxide	
R620	VRS-CY1JF682JS	V	6.8k	1/16W	Metal Oxide	
R621	VRD-RA2EE4R7JY	V	4.7	1/4W	Carbon	
R623	VRS-CY1JF273JS	V	27k	1/16W	Metal Oxide	
R624	VRS-CY1JF472JS	V	4.7k	1/16W	Metal Oxide	
R625	VRS-CY1JF222JS	V	2.2k	1/16W	Metal Oxide	
R626	VRS-CY1JF101JS	V	100	1/16W	Metal Oxide	
R627	VRS-CY1JF392JS	V	3.9k	1/16W	Metal Oxide	
R628	VRS-CY1JF224JS	V	220k	1/16W	Metal Oxide	
R629	VRS-CY1JF473JS	V	47k	1/16W	Metal Oxide	
R630	VRS-CY1JF562JS	V	5.6k	1/16W	Metal Oxide	
R632	VRS-CY1JF104JS	V	100k	1/16W	Metal Oxide	
R633	VRD-RA2BE104JY	V	100k	1/8W	Carbon	
R634	VRS-CY1JF101JS	V	100	1/16W	Metal Oxide	
R637	VRS-CY1JF682JS	V	6.8k	1/16W	Metal Oxide	
R638	VRD-RA2BE333JY	V	33k	1/8W	Carbon	AA
R653	VRS-CY1JF393JS	V	39k	1/16W	Metal Oxide	
R654	VRS-CY1JF392JS	V	3.9k	1/16W	Metal Oxide	
R657	VRS-CY1JF222JS	V	2.2k	1/16W	Metal Oxide	
R658	VRS-CY1JF103JS	V	10k	1/16W	Metal Oxide	
R659	VRS-CY1JF472JS	V	4.7k	1/16W	Metal Oxide	
R660	VRS-CY1JF471JS	V	470	1/16W	Metal Oxide	
R663	VRD-RA2BE393JY	V	39k	1/8W	Carbon	AA
R664	VRS-CY1JF392JS	V	3.9k	1/16W	Metal Oxide	
R667	VRD-RA2BE222JY	V	2.2k	1/8W	Carbon	AA
R668	VRS-CY1JF103JS	V	10k	1/16W	Metal Oxide	
R669	VRS-CY1JF472JS	V	4.7k	1/16W	Metal Oxide	
R670	VRS-CY1JF471JS	V	470	1/16W	Metal Oxide	
R671	VRS-CY1JF103JS	V	10k	1/16W	Metal Oxide	
R672	VRS-CY1JF331JS	V	330	1/16W	Metal Oxide	
R673	VRS-CY1JF331JS	V	330	1/16W	Metal Oxide	
R676	VRS-CY1JF102JS	V	1k	1/16W	Metal Oxide	
R678	VRS-CY1JF273JS	V	27k	1/16W	Metal Oxide	
R685	VRS-CY1JF272JS	V	2.7k	1/16W	Metal Oxide	
R686	VRS-CY1JF272JS	V	2.7k	1/16W	Metal Oxide	
R689	VRS-CY1JF272JS	V	2.7k	1/16W	Metal Oxide	
R690	VRS-CY1JF682JS	V	6.8k	1/16W	Metal Oxide	
R691	VRD-RA2BE102JY	V	1k	1/8W	Carbon	AA
R702	VRS-CY1JF102JS	V	1k	1/16W	Metal Oxide	
R704	VRS-CY1JF153JS	V	15k	1/16W	Metal Oxide	
R705	VRS-CY1JF153JS	V	15k	1/16W	Metal Oxide	
R706	VRS-CY1JF564JS	V	560k	1/16W	Metal Oxide	AA
R708	VRS-CY1JF332JS	V	3.3k	1/16W	Metal Oxide	
R709	VRS-CY1JF222JS	V	2.2k	1/16W	Metal Oxide	
R711	VRS-CY1JF102JS	V	1k	1/16W	Metal Oxide	
R713	VRS-CY1JF102JS	V	1k	1/16W	Metal Oxide	
R714	VRS-CY1JF223JS	V	22k	1/16W	Metal Oxide	
R715	VRS-CY1JF472JS	V	4.7k	1/16W	Metal Oxide	
R716	VRS-CY1JF182JS	V	1.8k	1/16W	Metal Oxide	
R717	VRS-CY1JF123JS	V	12k	1/16W	Metal Oxide	
R718	VRS-CY1JF563JS	V	56k	1/16W	Metal Oxide	
R719	VRS-CY1JF183JS	V	18k	1/16W	Metal Oxide	
R720	VRS-CY1JF103JS	V	10k	1/16W	Metal Oxide	
R721	VRS-CY1JF223JS	V	22k	1/16W	Metal Oxide	
R722	VRS-CY1JF473JS	V	47k	1/16W	Metal Oxide	
R724	VRS-CY1JF104JS	V	100k	1/16W	Metal Oxide	
R725	VRS-CY1JF332JS	V	3.3k	1/16W	Metal Oxide	
R726	VRS-CY1JF473JS	V	47k	1/16W	Metal Oxide	
R727	VRS-CY1JF154JS	V	150k	1/16W	Metal Oxide	
R728	VRS-CY1JF332JS	V	3.3k	1/16W	Metal Oxide	
R730	VRS-CY1JF101JS	V	100	1/16W	Metal Oxide	
R731	VRS-CY1JF473JS	V	47k	1/16W	Metal Oxide	
R732	VRD-RA2BE154JY	V	150k	1/8W	Carbon	
R733	VRS-CY1JF105JS	V	1M	1/16W	Metal Oxide	
R735	VRS-CY1JF104JS	V	100k	1/16W	Metal Oxide	
R736	VRS-CY1JF822JS	V	8.2k	1/16W	Metal Oxide	
R737	VRS-CY1JF103JS	V	10k	1/16W	Metal Oxide	
R738	VRS-CY1JF103JS	V	10k	1/16W	Metal Oxide	
R739	VRD-RA2BE102JY	V	1k	1/8W	Carbon	AA
R741	VRS-CY1JF123JS	V	12k	1/16W	Metal Oxide	
R742	VRS-CY1JF223JS	V	22k	1/16W	Metal Oxide	
R743	VRS-CY1JF563JS	V	56k	1/16W	Metal Oxide	
R744	VRS-CY1JF223JS	V	22k	1/16W	Metal Oxide	
R745	VRD-RA2BE102JY	V	1k	1/8W	Carbon	AA

Ref. No.	Part No.	★	Description	Code
R746	VRS-CY1JF182JS	V	1.8k 1/16W Metal Oxide	
R747	VRS-CY1JF681JS	V	680 1/16W Metal Oxide	
R748	VRS-CY1JF000JS	V	0 1/16W Metal Oxide	
R750	VRD-RA2BE473JY	V	47k 1/8W Carbon	AA
R751	VRD-RA2BE562JY	V	5.6k 1/8W Carbon	AA
R752	VRD-RA2BE103JY	V	10k 1/8W Carbon	AA
R754	VRD-RA2EE181JY	V	180 1/4W Carbon	AA
R756	VRS-CY1JF103JS	V	10k 1/16W Metal Oxide	
R760	VRG-SC2EB1R0J+	V	1 1/4W FuseResistor	AB
R771	VRS-CY1JF103JS	V	10k 1/16W Metal Oxide	
R781	VRS-CY1JF103JS	V	10k 1/16W Metal Oxide	
R782	VRS-CY1JF103JS	V	10k 1/16W Metal Oxide	
R783	VRD-RA2BE102JY	V	1k 1/8W Carbon	AA
R785	VRD-RA2BE391JY	V	390 1/8W Carbon	
R786	VRS-CY1JF473JS	V	47k 1/16W Metal Oxide	
R788	VRS-CY1JF104JS	V	100k 1/16W Metal Oxide	
R789	VRD-RA2BE391JY	V	390 1/8W Carbon	
R790	VRS-CY1JF473JS	V	47k 1/16W Metal Oxide	
R792	VRS-CY1JF104JS	V	100k 1/16W Metal Oxide	
R796	VRD-RM2HD271JY	V	270 1/2W Carbon (FH310GM/SM,GH61GM/SM,GH611GM)	AA
R809	VRD-RA2BE101JY	V	100 1/8W Carbon	
R811	VRS-CY1JF183JS	V	18k 1/16W Metal Oxide	
R813	VRS-CY1JF272JS	V	2.7k 1/16W Metal Oxide	
R814	VRS-CY1JF332JS	V	3.3k 1/16W Metal Oxide	
R815	VRS-CY1JF000JS	V	0 1/16W Metal Oxide (except FH310GM/SM)	
R815	VRS-CY1JF472J	V	4.7k 1/16W Metal Oxide (FH310GM/SM)	AA
R816	VRD-RA2BE822JY	V	8.2k 1/8W Carbon (except FH310GM/SM)	
R817	VRD-RA2BE822J	V	8.2k 1/8W Carbon (FH310GM/SM)	AA
R818	VRS-CY1JF472JS	V	4.7k 1/16W Metal Oxide (except FH310GM/SM)	
R818	VRS-CY1JF000J	V	0 1/16W Metal Oxide (FH310GM/SM)	AA
R821	VRS-CY1JF183JS	V	18k 1/16W Metal Oxide	
R823	VRS-CY1JF272JS	V	2.7k 1/16W Metal Oxide	
R824	VRS-CY1JF332JS	V	3.3k 1/16W Metal Oxide	
R825	VRS-CY1JF472JS	V	4.7k 1/16W Metal Oxide	
R826	VRS-CY1JF822JS	V	8.2k 1/16W Metal Oxide	
R827	VRD-RA2BE333JY	V	33k 1/8W Carbon	AA
R828	VRD-RA2BE563JY	V	56k 1/8W Carbon	AA
R835	VRD-RA2BE562JY	V	5.6k 1/8W Carbon	AA
R836	VRD-RA2BE562JY	V	5.6k 1/8W Carbon	AA
R837	VRD-RA2BE562JY	V	5.6k 1/8W Carbon	AA
R841	VRD-RA2BE221JY	V	220 1/8W Carbon	AA
R842	VRD-RA2BE221JY	V	220 1/8W Carbon	AA
R843	VRD-RA2BE221JY	V	220 1/8W Carbon	AA
R877	VRS-CY1JF104JS	V	100k 1/16W Metal Oxide	
⚠ R901	RR-HZ0014GEZZY	V	12M	AE
⚠ R902	VRD-RA2HD105JY	V	1M 1/2W Carbon	AA
R904	RR-SZ0007GEZZ	V	68k 2W	AB
R905	VRD-RA2HD105JY	V	1M 1/2W Carbon	AA
R906	VRD-RM2HD273JY	V	27k 1/2W Carbon	AA
R907	VRN-VV3DBR56J	V	0.56 2W Metal Film	AA
R909	VRS-CY1JF563JS	V	56k 1/16W Metal Oxide	
R910	VRD-RM2HD152JY	V	1.5k 1/2W Carbon	AA
R911	VRS-CY1JF101JS	V	100 1/16W Metal Oxide	
R913	VRD-RA2HD105JY	V	1M 1/2W Carbon	AA
R914	VRS-CY1JF183JS	V	18k 1/16W Metal Oxide	
R916	VRS-CY1JF333JS	V	33k 1/16W Metal Oxide	
R917	VRD-RA2BE223JY	V	22k 1/8W Carbon	AA
R930	VRD-RA2BE102JY	V	1k 1/8W Carbon	AA
R931	VRS-CY1JF561JS	V	560 1/16W Metal Oxide	
R932	VRD-RA2BE331JY	V	330 1/8W Carbon	
R933	VRS-CY1JF122JS	V	1.2k 1/16W Metal Oxide	
R934	VRS-CY1JF152JS	V	1.5k 1/16W Metal Oxide	
R935	VRS-CY1JF102JS	V	1k 1/16W Metal Oxide	
R936	VRD-RA2BE101JY	V	100 1/8W Carbon	
R938	VRS-CY1JF100JS	V	10 1/16W Metal Oxide	
R941	VRS-CY1JF273JS	V	27k 1/16W Metal Oxide	
R942	VRS-CY1JF104JS	V	100k 1/16W Metal Oxide	
R943	VRD-RA2BE152JY	V	1.5k 1/8W Carbon	AA
R953	VRS-CY1JF100JS	V	10 1/16W Metal Oxide	

Ref. No.	Part No.	★	Description	Code
R961	VRD-RA2BE560JY	V	56 1/8W Carbon	
R962	VRD-RA2EE180JY	V	18 1/4W Carbon	
R963	VRD-RM2HD390JY	V	39 1/2W Carbon	AA
R965	VRD-RA2BE103JY	V	10k 1/8W Carbon	AA
R966	VRS-CY1JF472JS	V	4.7k 1/16W Metal Oxide	
R967	VRD-RA2EE102JY	V	1k 1/4W Carbon	AA
R970	VRS-CY1JF000JS	V	0 1/16W Metal Oxide	
R971	VRD-RA2HD221JY	V	220 1/2W Carbon	
R973	VRD-RA2BE562JY	V	5.6k 1/8W Carbon	AA
R994	VRS-CY1JF103JS	V	10k 1/16W Metal Oxide	
R995	VRD-RA2HD182JY	V	1.8k 1/2W Carbon	
R1861	VRS-CY1JF473JS	V	47k 1/16W Metal Oxide	
R1862	VRS-CY1JF104JS	V	100k 1/16W Metal Oxide (FH310GM/SM)	
R1863	VRS-CY1JF221JS	V	220 1/16W Metal Oxide (FH310GM/SM)	
R1864	VRS-CY1JF473JS	V	47k 1/16W Metal Oxide (FH310GM/SM)	
R1865	VRS-CY1JF273JS	V	27k 1/16W Metal Oxide (FH310GM/SM)	
R8001	VRS-CY1JF472JS	V	4.7k 1/16W Metal Oxide	
R8002	VRS-CY1JF472JS	V	4.7k 1/16W Metal Oxide	
R8003	VRS-CY1JF472JS	V	4.7k 1/16W Metal Oxide	
R8004	VRS-CY1JF473JS	V	47k 1/16W Metal Oxide	
R8005	VRS-CY1JF000JS	V	0 1/16W Metal Oxide	

MISCELLANEOUS PARTS

⚠ ACC901	QACCV2009AJZZ	V	AC Cord	AM
⚠ F901	QFS-C2025CEZZ	V	Fuse, 2A/250V	AD
FB101	RBLN-0043CEZZY	V	Ferrite Bead	AB
FB204	RBLN-0090GEZZY	V	Ferrite Bead	AB
FB205	RBLN-0043CEZZY	V	Ferrite Bead	AB
FB206	RBLN-0043CEZZY	V	Ferrite Bead	AB
FB701	RBLN-0090GEZZY	V	Ferrite Bead	AB
FB901	RBLN-0090GEZZY	V	Ferrite Bead	AB
FB903	RBLN-0043CEZZY	V	Ferrite Bead	AB
FB931	RBLN-0043CEZZY	V	Ferrite Bead	AB
⚠ FH901	QFSHD1017CEZZ+	V	Fuse Holder	AC
⚠ FH902	QFSHD1018CEZZ+	V	Fuse Holder	AC
J201	QJAKFA005WJZZ	V	Rear AV Jack	
J202	QJAKGA002WJZZ	V	Front AV Jack	
LC8001	RLCDDA005WJZZ	V	LCD Display	
P501	QPLGZ0409REZZ	V	Plug, 8pin (FH310GM/SM,GH611GM,GH61GM/SM)	
P503	QPLGZ0409REZZ	V	Plug, 8pin (FH310GM/SM,GH611GM,GH61GM/SM)	
P701	QPLGZ1283GEZZ	V	Plug, 12pin	AE
P809	QPLGN0459REZZ	V	Plug, 7pin(AO)	AG
P901	QPLGN0269GEZZ	V	Plug,k 2pin	AB
P1701	QPLGZ0809REZZ	V	Plug,18pin	AC
RMC801	RRMCU0086GEZZ	V	Remote Receiver	AQ
S701	QSW-F0042AJZZ	V	Rec Tip Switch	AG
S704	QSW-RA001WJZZ	V	Switch	AF
S801	QSW-K0004AJZZ+	V	Switch	AB
S802	QSW-K0004AJZZ+	V	Switch	AB
S803	QSW-K0004AJZZ+	V	Switch	AB
S804	QSW-K0004AJZZ+	V	Switch	AB
S805	QSW-K0004AJZZ+	V	Switch	AB
S806	QSW-K0004AJZZ+	V	Switch	AB
S807	QSW-K0004AJZZ+	V	Switch	AB
S808	QSW-K0004AJZZ+	V	Switch	AB
SC301	QSOCNA006WJZZ	V	Socket, 9pin(AH)	AD
SC601	QSOCN0611REN1	V	Socket, 6pin(AA)	AC
SC602	QSOCZ0293GEZZ	V	Socket, 2pin(AE)	AC
SC803	QSOCZ0457GEZZ	V	Socket, 4pin(AM)	AC
SC2503	QSOCN2495REZZ	V	Socket, 24pin	
TP201	QPLGN0447REZZ	V	Plug, 4pin(TP201-4)	AA
PDA301	PSLDM4594AJFW	V	Shield	AD
W8001	LHLDZ2184AJZZ	V	Holder	AC
W8002	PSHEP0349AJZZ	V	Diffussion Sheet	AC
W851	LHLDZ2185AJ00	V	Holder	AB
W852	LHLDZ2185AJ00	V	Holder	AB

Ref. No.	Part No.	★	Description	Code

DUNTB106TEX1/X2 OPERATION Unit

RESISTORS

R881	VRS-CY1JF103JS	V	10k	1/16W	Metal Oxide	
R882	VRS-CY1JF103JS	V	10k	1/16W	Metal Oxide	
R883	VRS-CY1JF223JS	V	22k	1/16W	Metal Oxide	

MISCELLANEOUS PARTS

S881	QSW-K0004AJZZ+	V	Switch, PLAY	AB
S882	QSW-K0004AJZZ+	V	Switch, STOP	AB
S883	QSW-K0004AJZZ+	V	Switch, REC (FH310GM/SM)	AB
S884	QSW-K0004AJZZ+	V	Switch, REW (except FH310GM/SM)	AB
S885	QSW-K0004AJZZ+	V	Switch, REW (FH310GM/SM)	AB
S886	QSW-K0004AJZZ+	V	Switch, FF (except FH310GM/SM)	AB
S887	QSW-K0004AJZZ+	V	Switch, FF (FH310GM/SM)	AB
SC881	QSOCZ0450CEZZ	V	Socket, 4pin(OA)	AC

DUNTB107TEX1 BACK LIGHT Unit

TORANSISTORS

Q851	VS2PD601AR/-1Y	V	2PD601AR	AB
Q852	VS2PD601AR/-1Y	V	2PD601AR	AB

DIODES

D8851	RH-PXA021WJZZ+	V	PhotoDiode	AD
D8852	RH-PXA021WJZZ+	V	PhotoDiode	AD
D8853	RH-PXA021WJZZ+	V	PhotoDiode	AD

RESISTORS

R8853	VRD-RA2BE391JY	V	390	1/8W	Carbon	
R8854	VRD-RA2BE391JY	V	390	1/8W	Carbon	
R8855	VRS-CY1JF222JS	V	2.2k	1/16W	Metal Oxide	
R8856	VRS-CY1JF222JS	V	2.2k	1/16W	Metal Oxide	
R8857	VRD-RA2BE391JY	V	390	1/8W	Carbon	
R8858	VRD-RA2BE391JY	V	390	1/8W	Carbon	
R8859	VRD-RA2BE391JY	V	390	1/8W	Carbon	
R8860	VRD-RA2BE391JY	V	390	1/8W	Carbon	

MISCELLANEOUS PARTS

P883	QPLGZ0457GEZZ	V	Plug, 4pin(AM)	AD

DUNTKB111TEV3/V4 NICAM/IGR Unit

INTEGRATED CIRCUITS

IC1701	VHIMSP3407G-1Q	V	I.C. (FH310SM,GH60SSM, GH601SM,GH61SM)	AS
IC1701	VHIMSP3417G-1Q	V	I.C. (FH310GM,GH600SM, GH61GM,GH611GM)	AY

PACKAGED CIRCUITS

X1701	RCRSB0249GEZZ+	V	Crystal	AF

COILS

L1703	VP-XF100J0000+	V	Peaking 10µH	
L1704	VP-XF100J0000Y	V	Peaking 10µH	AB

Ref. No.	Part No.	★	Description	Code

CAPACITORS

C1701	VCCSD41HL220JY	V	22p	50V	Ceramic	
C1702	VCCCCY1HH470JY	V	47p	50V	Ceramic	AA
C1704	VCKYCY1HF103ZY	V	0.01	50V	Ceramic	AA
C1705	VCEA9M1CW106M+	V	10	16V	Electrolytic	
C1706	VCKYCY1HF103ZY	V	0.01	50V	Ceramic	AA
C1707	VCEA9M1CW106M+	V	10	16V	Electrolytic	
C1708	VCEA9M0JW226M+	V	22	6.3V	Electrolytic	AB
C1709	VCEA9M1AW226M+	V	22	10V	Electrolytic	AB
C1710	VCCCCY1HH5R0CY	V	5p	50V	Ceramic	AA
C1711	VCCCCY1HH6R0DY	V	6p	50V	Ceramic	AA
C1712	VCKYCY1HF103ZY	V	0.01	50V	Ceramic	AA
C1713	VCKYCY1HF103ZY	V	0.01	50V	Ceramic	AA
C1714	VCEA9M1HW105M+	V	1	50V	Electrolytic	AB
C1715	VCKYCY1HF103ZY	V	0.01	50V	Ceramic	AA
C1718	VCEA9M0JW226M+	V	22	6.3V	Electrolytic	AB
C1720	VCCCCY1HH470JY	V	47p	50V	Ceramic	AA
C1723	VCEA9M1CW106M+	V	10	16V	Electrolytic	
C1730	VCEA9M1CW106M+	V	10	16V	Electrolytic	
C1731	VCEA9M1CW106M+	V	10	16V	Electrolytic	
C1735	VCKYCY1HB122KY	V	1200p	50V	Ceramic	AA
C1738	VCKYCY1HB122KY	V	1200p	50V	Ceramic	AA

RESISTORS

R1703	VRS-CY1JF473JY	V	47k	1/16W	Metal Oxide	AA
R1710	VRD-RA2BE101JY	V	100	1/8W	Carbon	
R1711	VRD-RA2BE101JY	V	100	1/8W	Carbon	
R1714	VRS-CY1JF102JY	V	1k	1/16W	Metal Oxide	AA
R1720	VRS-CY1JF103JY	V	10k	1/16W	Metal Oxide	AA
R1723	VRS-CY1JF103JY	V	10k	1/16W	Metal Oxide	AA

MISCELLANEOUS PARTS

SC1701	QSOCZ0809REZZ	V	Socket, 8pin	AC

DUNTKB206TEV1 EUR-TERM Unit

INTEGRATED CIRCUITS

IC2501	VHILA73024V-1Y	V	LA73024V-TRM

TRANSISTORS

Q2903	VS2PB709AR/-1Y	V	2PB709AR	AB

DIODES

D2521	RH-EX0627GEZZY	V	Zener Diode	AA
D2561	RH-EX0627GEZZY	V	Zener Diode	AA
D2801	RH-EX0646GEZZY	V	Zener Diode	AA
D2802	RH-EX0646GEZZY	V	Zener Diode	AA
D2823	RH-EX0617GEZZY	V	Zener Diode	AA
D2841	RH-EX0646GEZZY	V	Zener Diode	AA
D2842	RH-EX0646GEZZY	V	Zener Diode	AA
D2851	RH-EX0646GEZZY	V	Zener Diode	AA
D2861	RH-EX0627GEZZY	V	Zener Diode	AA
D2891	RH-EX0646GEZZY	V	Zener Diode	AA
D2902	RH-EX0646GEZZY	V	Zener Diode	AA
D2903	RH-EX0627GEZZY	V	Zener Diode	AA
D2904	RH-EX0646GEZZY	V	Zener Diode	AA
D2905	RH-EX0627GEZZY	V	Zener Diode	AA

COILS

L2551	VP-XF3R3K0000Y	V	Peaking 3.3µH	
L2591	VP-XF3R3K0000Y	V	Peaking 3.3µH	

CAPACITORS

C2101	VCEA9M1HW105M+	V	1	50V	Electrolytic	AB
C2102	VCEA9M1HW105M+	V	1	50V	Electrolytic	AB
C2103	VCKYCY1HF103ZY	V	0.01	50V	Ceramic	AA
C2501	VCEA9M1HW105M+	V	1	50V	Electrolytic	AB
C2502	VCEA9M1CW106M+	V	10	16V	Electrolytic	
C2503	VCCCCY1HH101JY	V	100p	50V	Ceramic	AA
C2520	VCEA9M1CW107M+	V	100	16V	Electrolytic	AB
C2521	VCCCCY1HH101JY	V	100p	50V	Ceramic	AA

Ref. No.	Part No.	★			Description	Code
C2522	VCEA9M1HW105M+	V	1	50V	Electrolytic	AB
C2523	VCEA9M1HW105M+	V	1	50V	Electrolytic	AB
C2524	VCEA0M0JW477M+	V	470	6.3V	Electrolytic	AC
C2525	VCKYCY1CF104ZY	V	0.1	16V	Ceramic	AA
C2541	VCEA9M1HW105M+	V	1	50V	Electrolytic	AB
C2542	VCEA9M1CW106M+	V	10	16V	Electrolytic	
C2543	VCCCCY1HH101JY	V	100p	50V	Ceramic	AA
C2551	VCEA9M1HW105M+	V	1	50V	Electrolytic	AB
C2552	VCEA9M1HW105M+	V	1	50V	Electrolytic	AB
C2553	VCKYCY1HF103ZY	V	0.01	50V	Ceramic	AA
C2556	VCKYCY1HF103ZY	V	0.01	50V	Ceramic	AA
C2561	VCCCCY1HH101JY	V	100p	50V	Ceramic	AA
C2562	VCEA9M1HW105M+	V	1	50V	Electrolytic	AB
C2591	VCEA9M1HW105M+	V	1	50V	Electrolytic	AB
C2592	VCEA9M1HW105M+	V	1	50V	Electrolytic	AB
C2821	VCCCCY1HH101JY	V	100p	50V	Ceramic	AA
C2851	VCEA9M1CW106M+	V	10	16V	Electrolytic	
C2852	VCEA9M1CW106M+	V	10	16V	Electrolytic	
C2861	VCCCCY1HH101JY	V	100p	50V	Ceramic	AA
C2891	VCEA9M1CW106M+	V	10	16V	Electrolytic	
C2892	VCCCCY1HH221JY	V	220p	50V	Ceramic	AA
C2893	VCEA9M1CW106M+	V	10	16V	Electrolytic	
C2894	VCCCCY1HH221JY	V	220p	50V	Ceramic	AA
C2901	VCCCCY1HH820JY	V	82p	50V	Ceramic	AA
C2902	VCCCCY1HH820JY	V	82p	50V	Ceramic	AA

RESISTORS

RJ1	VRS-CY1JF000JY	V	0	1/16W	Metal Oxide	AA
RJ2	VRS-CY1JF000JY	V	0	1/16W	Metal Oxide	AA
RJ3	VRS-CY1JF000JY	V	0	1/16W	Metal Oxide	AA
R2103	VRD-RA2BE123JY	V	12k	1/8W	Carbon	
R2143	VRD-RA2BE123JY	V	12k	1/8W	Carbon	
R2501	VRS-CY1JF000JY	V	0	1/16W	Metal Oxide	AA
R2503	VRD-RA2BE123JY	V	12k	1/8W	Carbon	
R2521	VRD-RA2BE750JY	V	75	1/8W	Carbon	
R2541	VRS-CY1JF000JY	V	0	1/16W	Metal Oxide	AA
R2543	VRD-RA2BE123JY	V	12k	1/8W	Carbon	
R2551	VRS-CY1JF000JY	V	0	1/16W	Metal Oxide	AA
R2553	VRS-CY1JF123JY	V	12k	1/16W	Metal Oxide	AA
R2554	VRD-RA2BE123JY	V	12k	1/8W	Carbon	
R2561	VRD-RA2BE750JY	V	75	1/8W	Carbon	
R2591	VRS-CY1JF000JY	V	0	1/16W	Metal Oxide	AA
R2592	VRS-CY1JF123JY	V	12k	1/16W	Metal Oxide	AA
R2593	VRD-RA2BE123JY	V	12k	1/8W	Carbon	
R2801	VRD-RA2BE821JY	V	820	1/8W	Carbon	AA
R2803	VRS-CY1JF123JY	V	12k	1/16W	Metal Oxide	AA
R2821	VRD-RA2BE750JY	V	75	1/8W	Carbon	
R2841	VRD-RA2BE821JY	V	820	1/8W	Carbon	AA
R2843	VRS-CY1JF123JY	V	12k	1/16W	Metal Oxide	AA
R2851	VRD-RA2BE821JY	V	820	1/8W	Carbon	AA
R2861	VRD-RA2BE750JY	V	75	1/8W	Carbon	
R2891	VRD-RA2BE821JY	V	820	1/8W	Carbon	AA
R2902	VRS-CY1JF472JY	V	4.7k	1/16W	Metal Oxide	AA
R2903	VRD-RA2BE821JY	V	820	1/8W	Carbon	AA
R2904	VRD-RA2EE331JY	V	330	1/4W	Carbon	
R2905	VRD-RA2BE183JY	V	18k	1/8W	Carbon	
R2906	VRS-CY1JF153JY	V	15k	1/16W	Metal Oxide	AA

MISCELLANEOUS PARTS

FB2501	RBLN-0077TAZZY	V	Ferrite Bead	AB
FB2521	RBLN-0076TAZZY	V	Ferrite Bead	AC
FB2541	RBLN-0077TAZZY	V	Ferrite Bead	AB
FB2561	RBLN-0076TAZZY	V	Ferrite Bead	AC
FB2801	RBLN-0077TAZZY	V	Ferrite Bead	AB
FB2821	RBLN-0077TAZZY	V	Ferrite Bead	AB
FB2841	RBLN-0077TAZZY	V	Ferrite Bead	AB
FB2851	RBLN-0077TAZZY	V	Ferrite Bead	AB
FB2861	RBLN-0077TAZZY	V	Ferrite Bead	AB
FB2891	RBLN-0077TAZZY	V	Ferrite Bead	AB
SC2501	QSOCZA019WJZZ	V	Socket, 21pin Jack	
SC2502	QSOCN2495REZZ	V	Socket, 24pin	

Ref. No.	Part No.	★	Description	Code

DUNTB234TEV1
SECAM Unit

INTEGRATED CIRCUITS

IC1801	VHILC74793J1EY	V	I.C.	AV

CAPACITORS

C1803	VCQYTA1HM563J+	V	0.056	50V	Mylar	
C1804	VCEA9M1HW475M+	V	4.7	50V	Electrolytic	AB
C1805	VCKYCY0JF105ZY	V	1	6.3V	Ceramic	AB
C1806	VCEA9M1HW105M+	V	1	50V	Electrolytic	AB
C1807	VCKYCY1HF103ZY	V	0.01	50V	Ceramic	AA
C1811	VCEA9M0JW476M+	V	47	6.3V	Electrolytic	AB
C1812	VCKYCY1HF103ZY	V	0.01	50V	Ceramic	AA

RESISTORS

R1801	VRS-CY1JF103JY	V	10k	1/16W	Metal Oxide	AA
R1807	VRS-CY1JF272JY	V	2.7k	1/16W	Metal Oxide	AA
R1808	VRS-CY1JF562JY	V	5.6k	1/16W	Metal Oxide	AA
R1810	VRS-CY1JF103JY	V	10k	1/16W	Metal Oxide	AA

MISCELLANEOUS PARTS

SC501	QSOCZ0409REZZ	V	Socket, 8pin
SC503	QSOCZ0409REZZ	V	Socket, 8pin

MECHANISM CHASSIS PARTS

Ref. No.	Part No.	★	Description	Code
1	LBNDK1021AJZZ	V	Tension Band Ass'y	AC
2	LBOSZ1022AJZZ	V	Tension Arm Boss	AB
4	LBOSZ1006AJZZ	V	Cassette Stay L	AD
5	LCHSM0186AJZZ	V	Main Chassis Ass'y	AQ
6	LHLDZA049WJZZ	V	Loading Motor Block	
7	LPOLM0085GEZZ	J	Supply Pole Base Ass'y	AF
8	LPOLM0086GEZZ	J	Take-up Pole Base Ass'y	AF
9	MLEVF0544AJZZ	V	Tension Arm Ass'y	AE
10	MARMP0061AJZZ	V	Loading Arm Take-up	AC
11	MARMP0062AJZZ	V	Loading Arm Supply	AC
12	MLEVF0545GEZZ	J	Pinch Roller Lever Ass'y	AM
13	NBRGP0031AJZZ	V	Pinch Guide Bearing	AB
16	LANGFA008WJFW	V	A/C Head Plate	
17	LHLDW1895AJZZ	V	A/C Head FFC Holder	AB
18	MLEVP0347AJZZ	V	Pinch Double Action Lever	AC
19	MLEVP0344AJZZ	V	Reverse Guide Lever Ass'y	AE
20	MLEVP0342AJZZ	V	Loading Link Take-up	AB
21	MLEVP0343AJZZ	V	Loading Link Supply	AB
23	MLEVP0346AJZZ	V	Clutch Lever	AC
24	MLEVP0348AJZZ	V	Supply Main Brake	AB
25	MLEVP0349AJZZ	V	Take-up Main Brake Ass'y	AC
27	MSLiP0016AJZZ	V	Shifter	AD
28	MSPRD0210AJFJ	V	Reverse Guide Spring	AB
29	MSPRD0213AJFJ	V	Take-up Load Double Action Spring	AB
30	MSPRD0214AJFJ	V	Supply Load Double Action Spring	AB
31	MSPRT0439AJFJ	V	Pinch Double Action Spring	AB
32	MSPRT0438AJFJ	V	Main Brake Spring	AB
33	MSPRT0416AJFJ	V	Tension Spring	AD
34	NBLTK0069AJ00	V	H-Reel Belt	AC
35	NDAiV1093AJ00	V	Reel Disk	AC
36	NGERW1082AJZZ	V	Worm Wheel Gear	AC
37	NGERH1344AJZZ	V	Master Cam	AD
38	NGERH1343AJZZ	V	Synchro Gear	AB
41	NGERH1345AJZZ	V	Pinch Drive Cam	AC
43	NGERH1299AJZZ	V	Reel Relay Gear	AE
44	NGERW1081AJZZ	V	Worm Gear	AB
45	NGERH1342AJZZ	V	Loading Connect Gear	AB
46	NiDR-0036AJZZ	V	Idler Ass'y	AD
48	NPLYV0173AJZZ	V	Limiter Pully Ass'y	AF
49	NROLP0131GEZZ	J	Guide Roller	AL
51	MSPRC0217AJFJ	V	Guide Roller Spring	AC
52	PREFL1025AJZZ	V	Light Guide	AC
53	QCNW-A245WJZZ	V	Drum Motor FFC	AE
55	QCNW-A247WJZZ	V	A/C Head FFC	AD
56	QPWBFB112WJZZ	V	A/C Head PWB	AC
58	RHEDTA001WJZZ	V	Full Erase Head	AH
59	RHEDUA002WJZZ	V	A/C Head Ass' y W/O AE	
60	RMOTMA001WJZZ	V	Loading Motor	AK
61	RMOTNA001WJZZ	V	Capstan Motor	AX
62	RMOTP1139GEZZ	J	Drum Drive Motor	AT
63	DDRMW0043TEX2	V	Upper and Lower Drum	
65	QBRSK0041GEZZ	J	Earth Brush Ass' y	AD
66	XBPSD26P04500	V	2.6P+4.5A(D/M)	AB
67	PGiDM0187AJZZ	V	Open Guide	AC
70	MSPRC0228AJFJ	V	Azimuth Spring	AB
71	MSPRC0224AJFJ	V	Height Adjusting Spring	AC
72	LHLDW1894AJZZ	V	R/T FFC Holder	AB
73	MLEVP0355AJZZ	V	Auto Head Cleaner Ass'y	

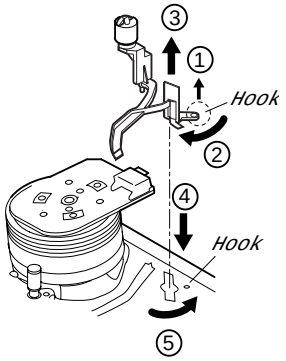
SCREW, NUTS AND WASHERS

Ref. No.	Part No.	★	Description	Code
201	XBPSD26P08000	V	2.6P+8S A/C Head	AA
202	LX-BZ3096GEFD	J	Tilt Adjusting Screw	AA
203	LX-HZ3082GEZZ	J	WSW 2.6+6(AC)	AD
204	XJPSD26P06000	V	2.6+6S(CAPST)	AA
205	LX-RZ3015GEFJ	J	CS Washer	AB
208	XRESJ30-06000	V	E-3(MASTERCAM)	AA
209	XWHJZ31-03052	V	Reel Washer 0.3	AC
210	XWHJZ31-04052	V	Reel Washer 0.4	AC
211	XWHJZ31-05052	V	Reel Washer 0.5	AC
212	XWHJZ31-06052	V	Reel Washer 0.6	AC
213	XWHJZ31-07052	V	Reel Washer 0.7	AC
214	XWHJZ31-08052	V	Reel Washer 0.8	AC
215	XHPSD26P05WS0	V	L/M Block Screw	AC
216	LX-WZ1041GE00	J	CW2.6-6-0.5 ARM	AA
219	LX-WZ1098GE00	J	CW2.6-4.7-0.5	AB
221	XBPSD26P06000	V	Azimuth Adjusting Screw	AA
222	XBPSD26P14000	V	A/C Head Screw	AA
224	XBPSD30P06000	V	3P+6S (DRM FIX)	AA

CASSETTE HOUSING CONTROL PARTS

Ref. No.	Part No.	★	Description	Code
300	CHLDX3083TEV1	V	Cassette Housing Control Ass'y	AP
301	LANGF9661AJFW	V	Upper Plate	AD
302	LHLDX1049AJ00	V	Frame (L)	AD
303	LHLDX1050AJ00	V	Frame (R)	AE
304	LHLDX1051AJZZ	V	Holder (L)	AC
305	LHLDX1052AJZZ	V	Holder (R)	AC
306	MARMP0063AJZZ	V	Drive Arm (L)	AB
307	MARMP0064AJZZ	V	Drive Arm (R)	AC
308	MLEVP0350AJZZ	V	Drive Lever	AD
309	MLEVP0351AJZZ	V	Proof Lever	AC
310	MLEVP0352AJ00	V	Sensor Plate	AB
311	MLEVP0353AJ00	V	Open Lever	AB
312	MSLiF0079AJFW	V	Slider	AD
313	MSPRD0212AJFJ	V	Drive Arm Spring	AB
314	MSPRP0175AJFJ	V	Cassette Spring	AE
315	MSPRD0215AJFJ	V	Proof Lever Spring	AB
317	NSFTD0065AJFD	V	Main Shaft	AD

• Replacing the AHC (Auto Head Cleaner)



• How to remove
Turn the H-AHC ass'y in the direction of (2), lifting the hook of the H-AHC ass'y in the direction of (1). When the hook is undone, pull out the H-AHC ass'y in the direction of (3).

• How to install
Insert the H-AHC ass'y into the hole on the chassis in the direction of (4) and turn it in the direction of (5). Check that the chassis hook and hook of the H-AHC ass'y are engaged.

* Caution when replacing
• Do not allow the AHC ass'y to contact with the drum.
• Do not contaminate the cleaner section of the AHC ass'y with grease, etc.

MECHANICAL PARTS (EXCEPT VC-FH310GM/SM)

Ref. No.	Part No.	★	Description	Code
600	GCABA3169UMSW	V	Top Cabinet	
601	GCABB1258AJNA	V	Main Frame (except GH611GM(BK))	
601	GCABB1258AJNB	V	Main Frame (GH611GM(BK))	
602	GCOVAA013WJZZ	V	Antenna Terminal Cover	
603	XHPSD30P06WS0	V	Screw	AA
604	LANGK0261AJFW	V	Top Cabinet Fix Angel	AC
605	XEPSD30P14XS0	V	Screw	
606	LX-HZ3047GEFF	V	Screw	AA
607	XJSSF30P10000	V	Screw	AA
608	LX-HZ3098GEFF	V	Screw	AB
609	LHLDZ2185AJ00	V	Sensor LED Cover	AB
610	UMS0026AJZZ	V	Foot Cushion	AB
611	TLABM0167UMZZ	V	Model Label	
612	GBDYU3145AJFW	V	Bottom Plate	
613	XEBSD30P06000	V	Screw	AA
614	LHLDZ2184AJZZ	V	LCD Holder	AC
616	PSLDM4594AJFW	V	H/A Shield	AD
617	QEARPA016WJFW	V	Earth Plate	
620	PSPAZ0600AJZZ	V	Spacer	AB

MECHANICAL PARTS (VC-FH310GM/SM)

Ref. No.	Part No.	★	Description	Code
600	GCABA3172AJSW	V	Top Cabinet	
601	GCABB1257AJNB	V	Main Frame	
602	GCOVA2230AJZZ	V	Antenna Terminal Cover	
603	XHPSD30P06WS0	V	Screw	AA
604	LANGK0262AJFW	V	Top Cabinet Fix Angle	
605	XJSSF30P10000	V	Screw	AA
606	LX-HZ3047GEFF	V	Screw	AA
607	XEBSD30P12000	V	Screw	AA
608	LX-HZ3098GEFF	V	Screw	AB
609	LHLDZ2185AJ00	V	Sensor LED Holder	AB
610	PGUMS0026AJZZ	V	Foot Cushion	AB
611	TLABM0167UMZZ	V	Model Label	
612	GBDYU3144AJFW	V	Bottom Plate	
614	LHLDZ2184AJZZ	V	LCD Holder	AC
616	PSLDM4594AJFW	V	H/A Shield	AD
617	QEARPA016WJFW	V	Earth Plate	
618	XEPSD30P14XS0	V	Screw	
619	XEBSD30P06000	V	Screw	
620	PSPAZ0600AJZZ	V	Spacer	AB

FRONT PANEL PARTS (EXCEPT VC-FH310GM/SM)

Ref. No.	Part No.	★	Description	Code
500	CPNLCA003TEV1	V	Front Panel Ass' y (GH60SM)	
500	CPNLCA033TEV1	V	Front Panel Ass' y (GH61GM)	
500	CPNLCA004TEV1	V	Front Panel Ass' y (GH61SM)	
500	CPNLCA040TEV1	V	Front Panel Ass' y (GH601SM)	
500	CPNLCA041TEV1	V	Front Panel Ass' y (GH600SM)	
500	CPNLCA025TEV2	V	Front Panel Ass' y (GH611GM(BK))	
500	CPNLCA025TEV1	V	Front Panel Ass' y (GH611GM(S))	
500-1	————————	-	Front Panel	—
500-3	HDECQA004WJSA	V	Cassette Flap (GH60SM)	
500-3	HDECQA005WJSA	V	Cassette Flap (GH61GM)	
500-3	HDECQA006WJSA	V	Cassette Flap (GH61SM)	
500-3	HDECQA059WJSA	V	Cassette Flap (GH600SM)	
500-3	HDECQA058WJSA	V	Cassette Flap (GH601SM)	
500-3	HDECQA022WJSB	V	Cassette Flap (GH611GM(BK))	
500-3	HDECQA022WJSA	V	Cassette Flap (GH611GM(S))	
500-4	HDECQA042WJSA	V	Front Dec. (GH60SM, GH61GM/SM)	
500-6	HiNDP2237AJSC	V	Timer LED Indicator (GH60SM,GH61GM/SM)	AD
500-6	HiNDPA033WJSB	V	Timer LED Indicator (GH611GM(BK))	
500-6	HiNDPA033WJSC	V	Timer LED Indicator (GH600SM,GH601SM,GH611GM(S))	
500-7	MSPRD0105AJFJ	V	Cassette Flap Spring	AB
500-10	JBTN-3164AJSA	V	Button, Pwer (GH611GM(BK))	AC
500-10	JBTN-3164AJSB	V	Button, Pwer (GH600SM,GH601SM,GH611GM(S))	
500-11	GCOVA2214AJZZ	V	R/C Cover (GH60SM,GH61GM/SM)	AC
500-11	GCOVA2222AJZZ	V	R/C Cover (GH600SM,GH601SM,GH611GM)	AC
500-12	JBTN-3165AJSA	V	Button, CH (GH611GM(BK))	AC
500-12	JBTN-3165AJSB	V	Button, CH (GH600SM,GH601SM,GH611GM(S))	
501	JBTN-3159AJSA	V	Button, STOP/PLAY (GH60SM,GH61GM/SM)	AC
501	JBTN-3163AJSA	V	Button, STOP/PLAY (GH611GM(BK))	AC
501	JBTN-3163AJSB	V	Button, STOP/PLAY (GH600SM,GH601SM,GH611GM(S))	
502	JBTN-3162AJSA	V	Button, FF/REW (GH60SM,GH61GM/SM)	AC
502	JBTN-3166AJSA	V	Button, FF/REW (GH611GM(BK))	AC
502	JBTN-3166AJSB	V	Button, FF/REW (GH600SM,GH601SM,GH611GM(S))	

FRONT PANEL PARTS (VC-FH310GM/SM)

Ref. No.	Part No.	★	Description	Code
500	CPNLCA027TEV1	V	Front Pnel Ass' y (FH310GM)	
500	CPNLCA027TEV2	V	Front Pnel Ass' y (FH310SM)	
500-1	Not Available	-	Front Pnel	—
500-2	GCOVA2217AJSA	V	REC LED Cover	
500-3	HDECQA034WJSA	V	Cassette Flap (FH310GM)	
500-3	HDECQA035WJSA	V	Cassette Flap (FH310SM)	
500-4	HDECQA036WJSA	V	Front Dec.	
500-6	HINDPA018WJSA	V	LCD Indicator	
500-7	MSPRD0105AJFJ	V	Cassette Flap Spring	AB
500-11	GCOVA2214AJZZ	V	R/C Cover	AC
501	JBTN-3158AJSA	V	Button, PLAY/STOP	AC

SUPPLIED ACCESSORIES

ACCESSORIES

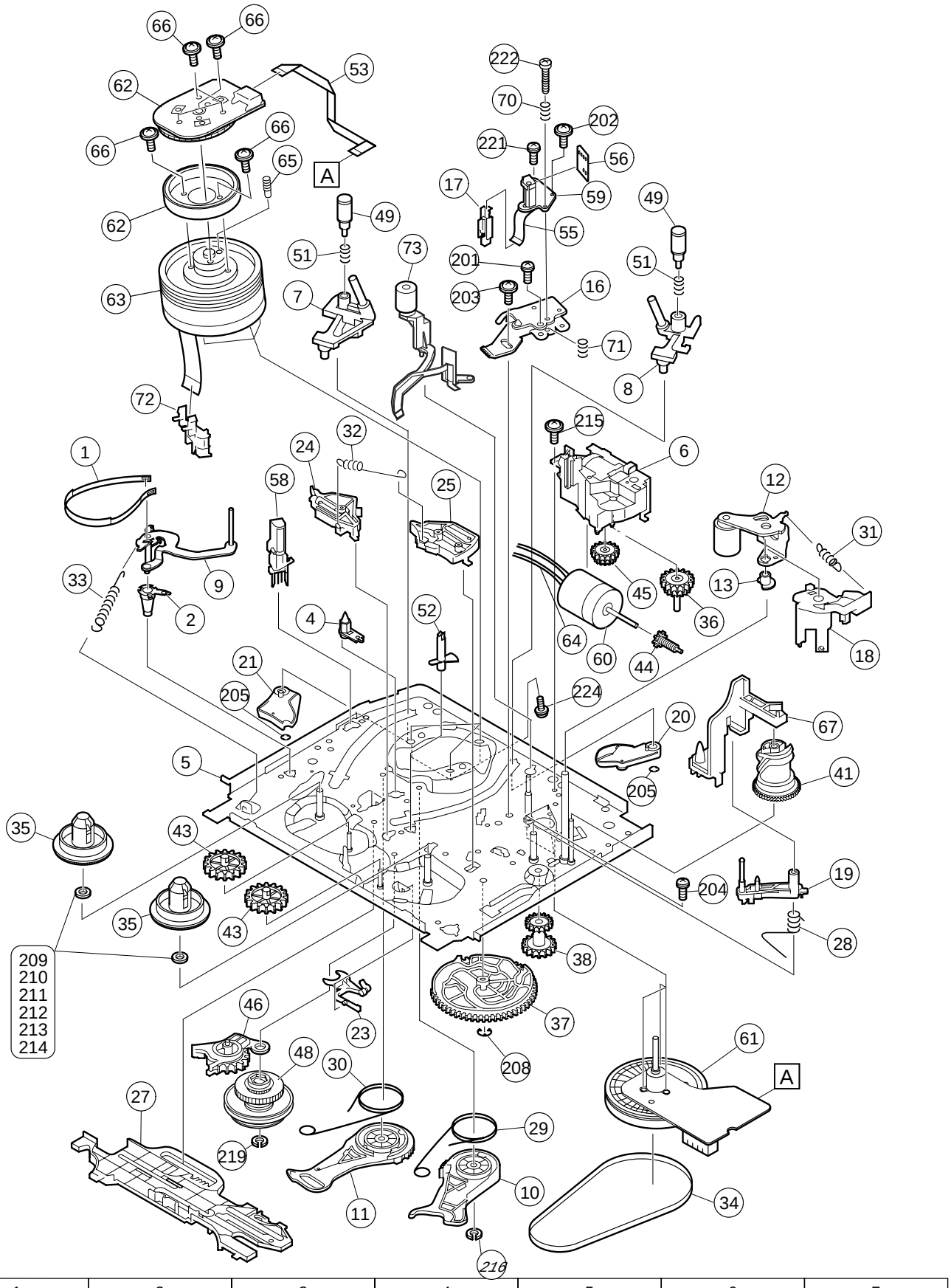
	QCNW-7870UMZZ	U	75ohm Coaxial Cable	AH
	TiNS-A083UMZZ	U	Operation Manual (GH61GM/GH611GM)	
	TiNS-A091UMZZ	U	Operation Manual (GH61SM)	
	TiNS-A084UMZZ	U	Operation Manual (FH310GM/SM)	
	RRMCG1184AJSB	V	Infrared Remote Control Unit (FH310GM/SM)	
	RRMCG1255AJSB	V	Infrared Remote Control Unit (except FH310GM/SM)	

ACCESSORIES(*NOT REPLACEMENT ITEM*)

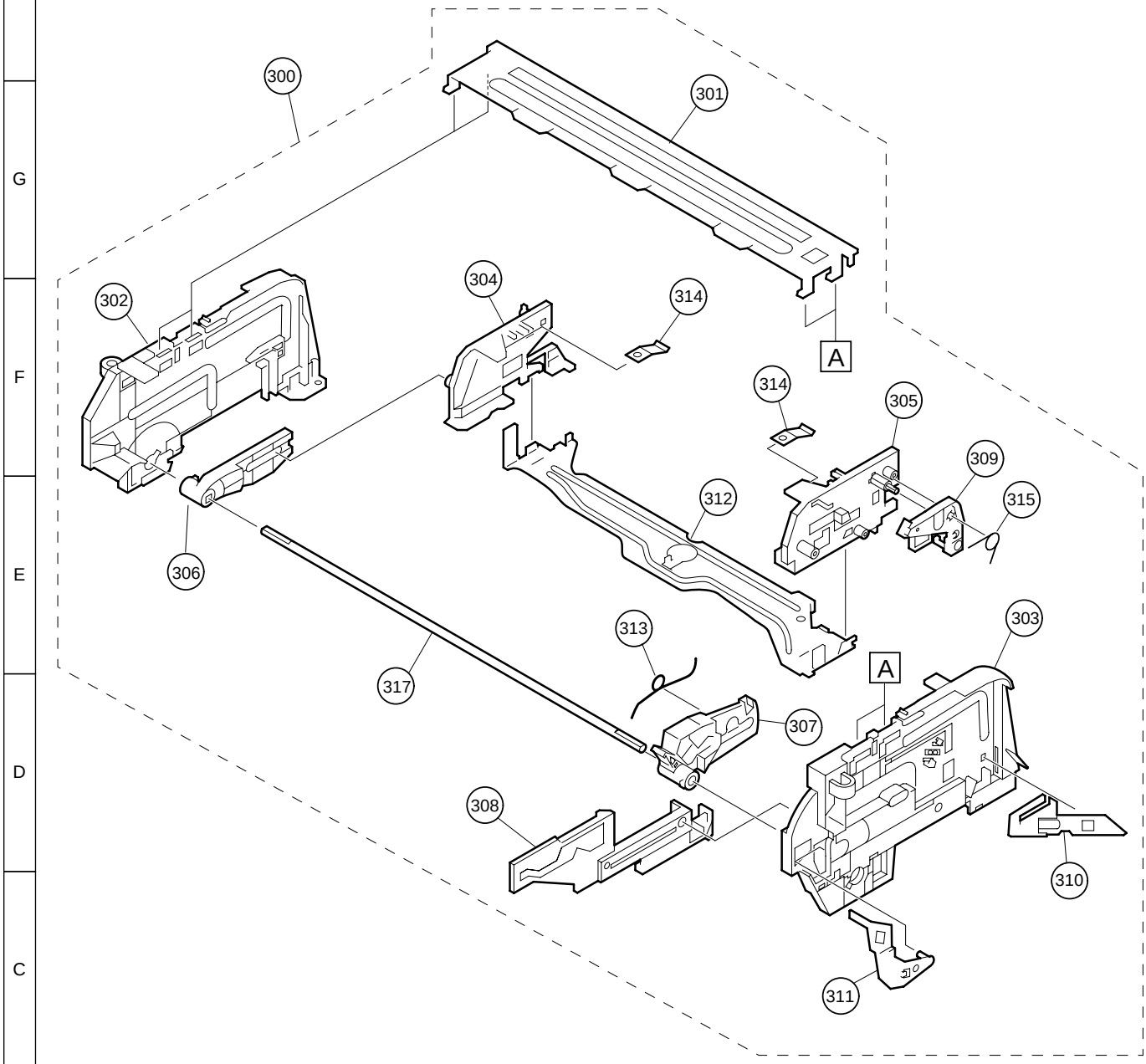
	SPAKP0051UMZZ	-	Foam Bag	—
	SPAKCA081WJZZ	-	Packing Case (GH61GM/SM,GH611GM)	—
	SPAKCA076WJZZ	-	Packing Case (FH310GM/SM)	—
	SPAKXA018WJZZ	-	Packing Pulp R	—
	SPAKXA019WJZZ	-	Packing Pulp L	—

11. EXPLODED VIEW OF MECHANICAL PARTS/ EXPLOSIONSDARSTELLUNGEN DES MECHANISCHE TEILE

MECHANISM CHASSIS PARTS/TEILE DES LAUFWERKCHASSIS



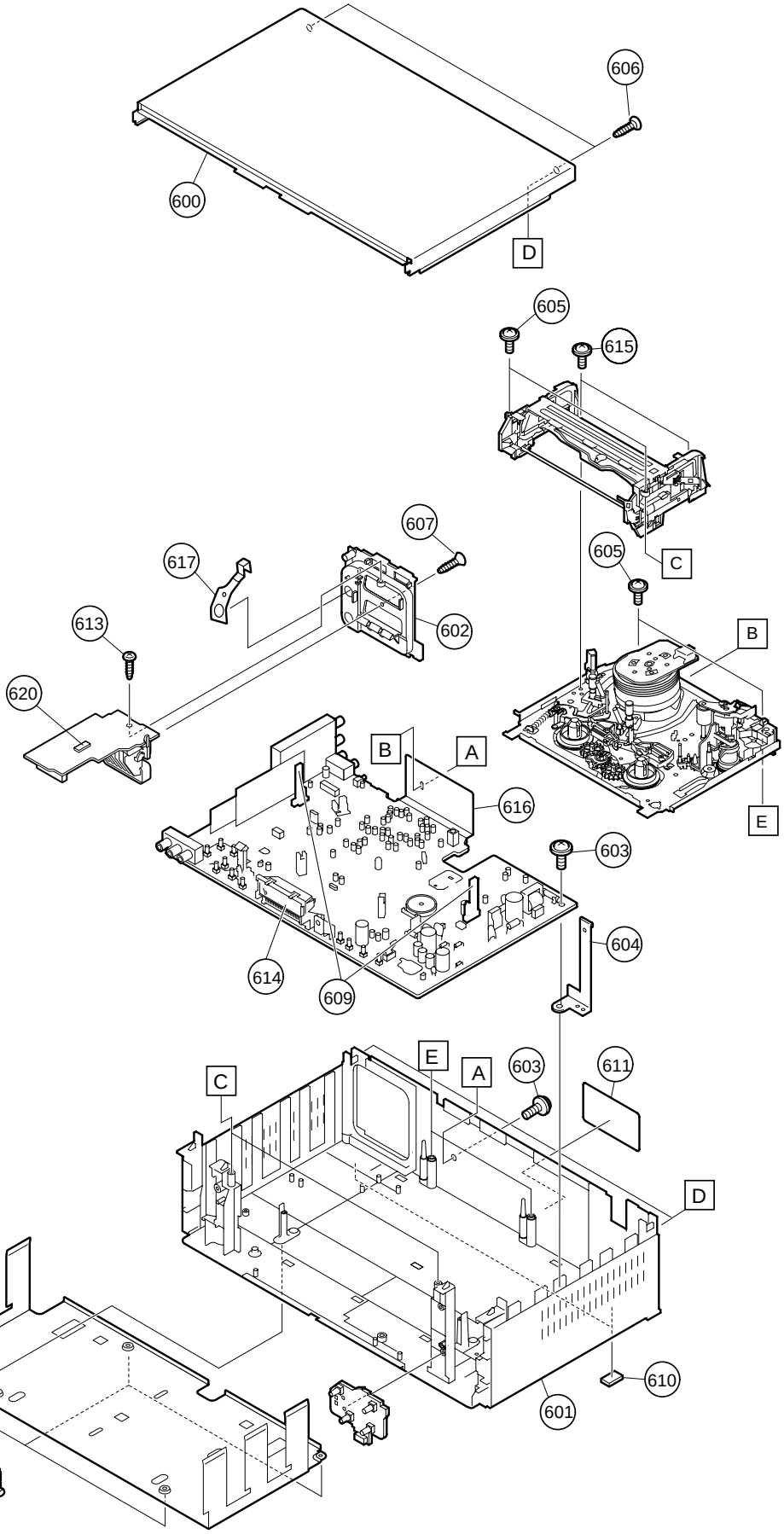
CASSETTE HOUSING CONTROL PARTS/CASSETTENGEHAUSE-REGELTEILE



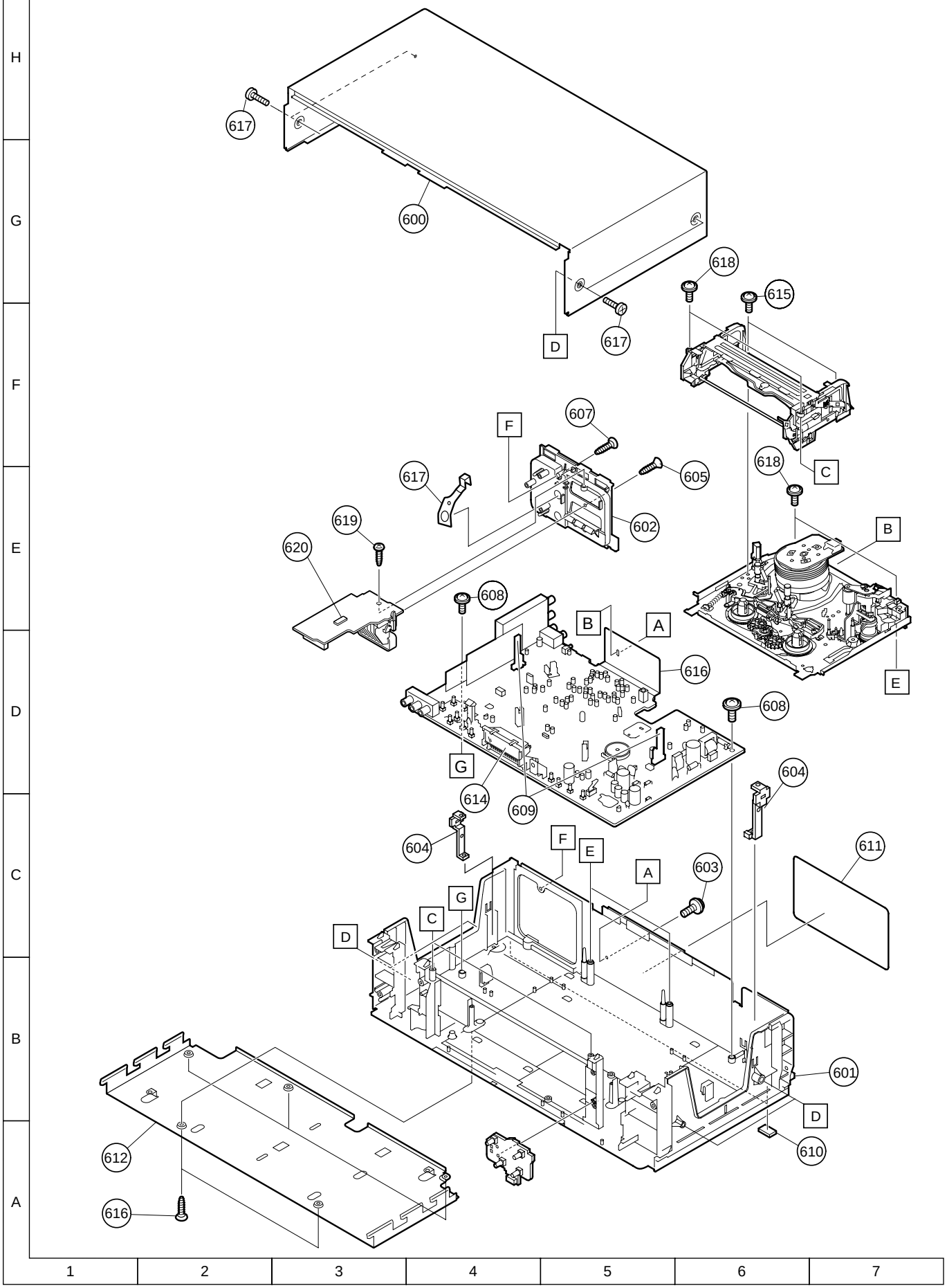
H G F E D C B A

1 2 3 4 5 6 7

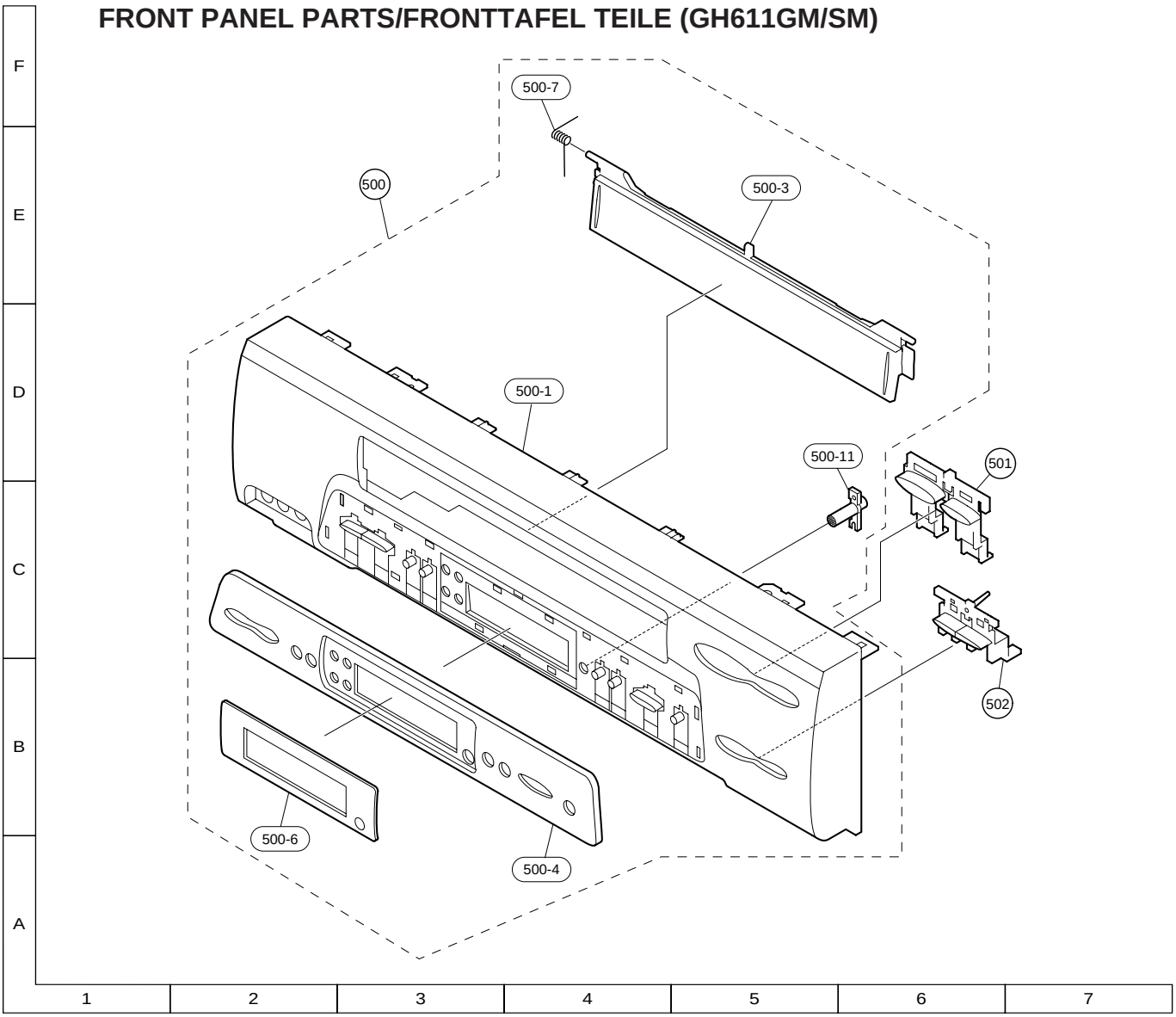
MECHANICAL PARTS/MECHANISCHE TEILE (GH61GM/SM,GH611GM/SM)



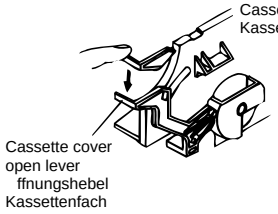
MECHANICAL PARTS/MECHANISCHE TEILE (FH310GM/SM)

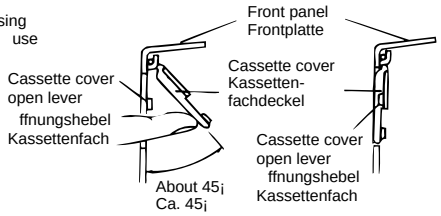


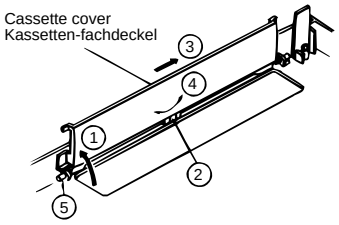
FRONT PANEL PARTS/FRONTTAFEL TEILE (GH611GM/SM)



PRECAUTION ON FRONT PANEL SET-UP
VORSICHTSMASSNAHMEN BEIM MONTIEREN DER FRONTPLATTE







Before attaching the front panel in position, make sure that the cassette cover open lever is in its right place (lower-most). If it is out of position, push it down with a finger.

Vor dem Anbringen der Fronplatte dafür sorgen, daß sich der Öffnungshebel für das Kassettenfach in der korrenkten Position (ganz unten) befindet.
Ist dies nicht der Fall, den Henel mit dem Finger herunterdrücken.

Keep the cassette cover about 45° open and make sure that the cassette cover open lever is between the front panel and the cassette cover. Now fix the front panel in place.

Den Kassettenfachdeckel auf ca. 45° offen halten und darauf achten, daß sich der Öffnungshebel zwischen der Frontplatte und dem Kassettenfachdeckel befindet. Frontplatte befestigen.

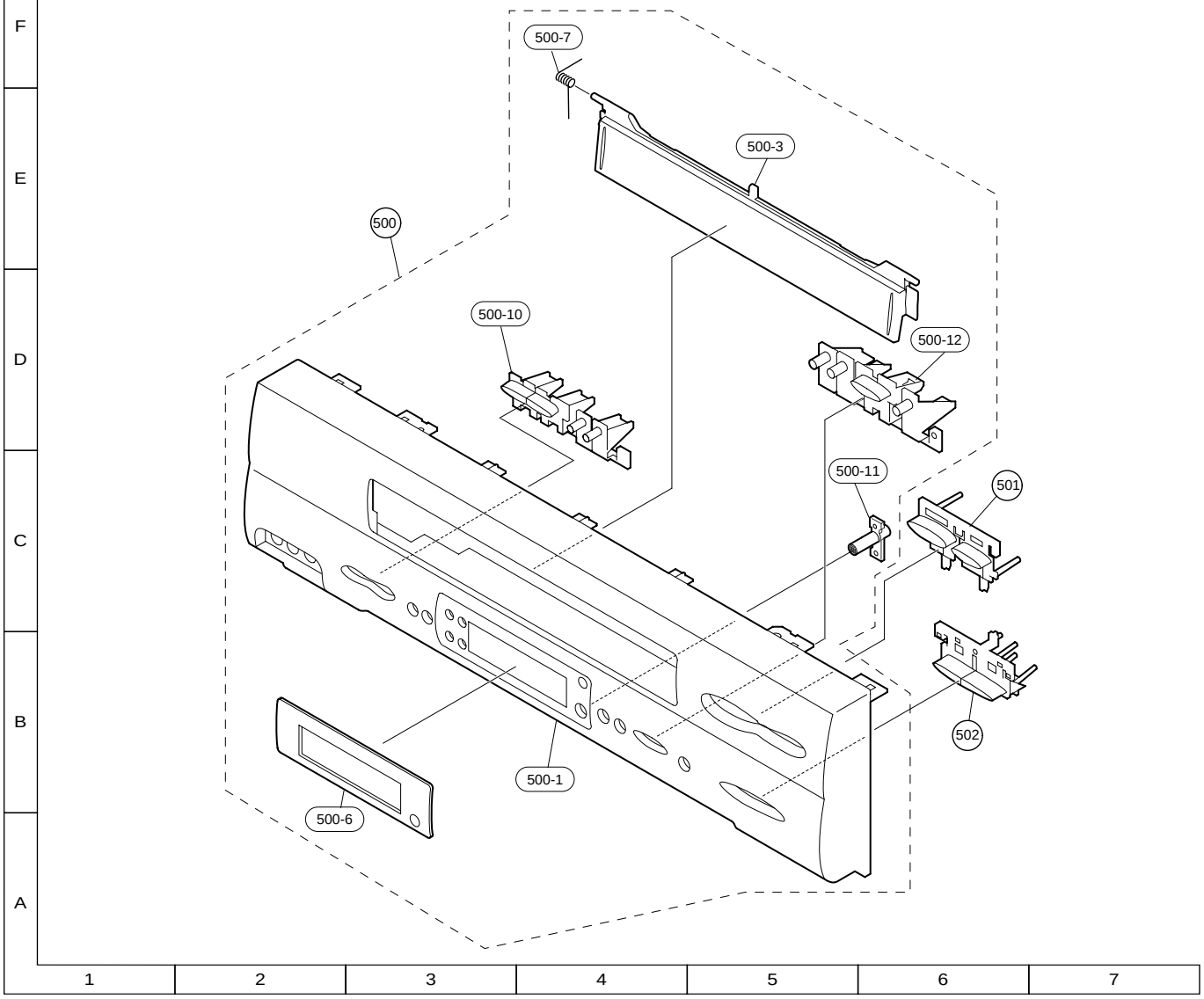
Do not mount the front panel with the cassette cover tilted too open. Otherwise the cassette cover might wrongly run on the cassette housing.

Die Frontplatte nicht montieren, wenn der Kassetten-fachdeckel zu weit geöffnet ist. Ansonsten kann der Kassettenfachdeckel durch Reibung am Kassettengehäuse beschädigt werden.

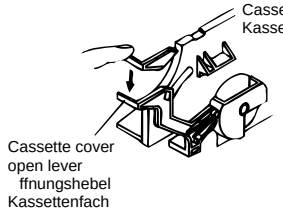
Removing the cassette compartment cover.
① Open the cassette compartment cover fully.
② Remove the center positioner.
③ Slide the cover to the right.
④ Slightly bend the cover.
⑤ Draw out the left-side rod.

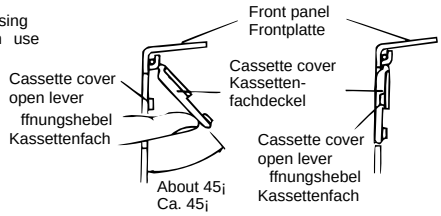
Kassettenfachabdeckung entfemen
① Die Kassettenfachabdeckung vollständig öffnen.
② Das Positionierungsteil In der Mitte entfernen.
③ Die Abdeckung nach rechts schieben.
④ Die Abdeckung etwas biegen.
⑤ Die Stange an der linken Seite herausziehen.

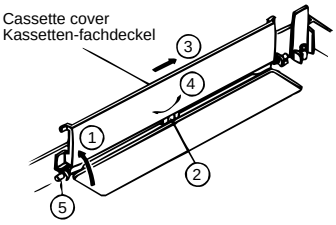
FRONT PANEL PARTS/FRONTTAFEL TEILE (GH611GM/SM)



PRECAUTION ON FRONT PANEL SET-UP
VORSICHTSMASSNAHMEN BEIM MONTIEREN DER FRONTPLATTE







Before attaching the front panel in position, make sure that the cassette cover open lever is in its right place (lower-most). If it is out of position, push it down with a finger.

Vor dem Anbringen der Fronplatte dafür sorgen, daß sich der Öffnungshebel für das Kassettenfach in der korrenkten Position (ganz unten) befindet.
Ist dies nicht der Fall, den Henel mit dem Finger herunterdrücken.

Keep the cassette cover about 45° open and make sure that the cassette cover open lever is between the front panel and the cassette cover. Now fix the front panel in place.

Den Kassettenfachdeckel auf ca. 45° offen halten und darauf achten, daß sich der Öffnungshebel zwischen der Frontplatte und dem Kassettenfachdeckel befindet. Frontplatte befestigen.

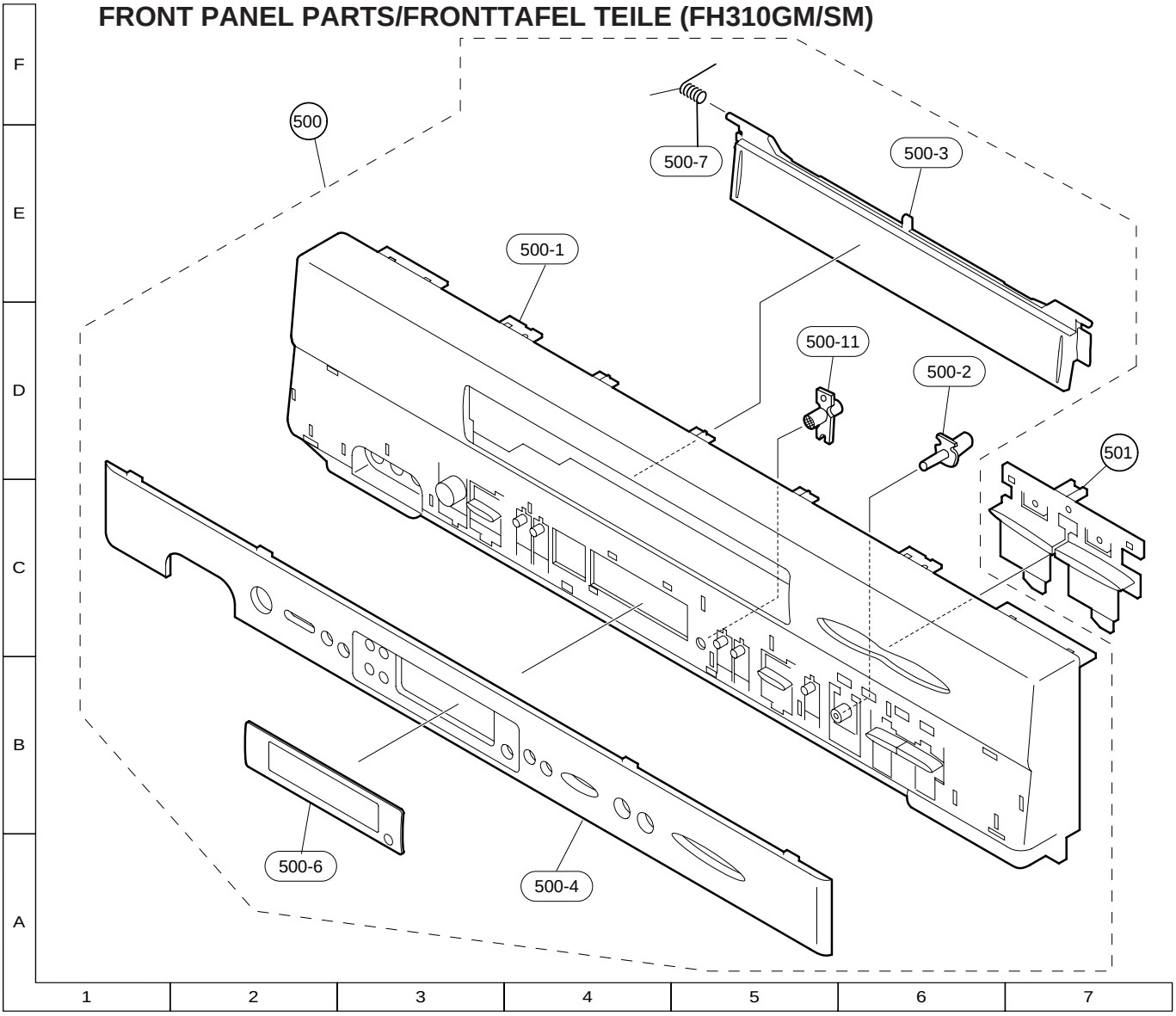
Do not mount the front panel with the cassette cover tilted too open. Otherwise the cassette cover might wrongly run on the cassette housing.

Die Frontplatte nicht montieren, wenn der Kassetten-fachdeckel zu weit geöffnet ist. Ansonsten kann der Kassettenfachdeckel durch Reibung am Kassettengehäuse beschädigt werden.

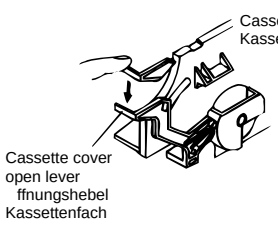
Removing the cassette compartment cover.
① Open the cassette compartment cover fully.
② Remove the center positioner.
③ Slide the cover to the right.
④ Slightly bend the cover.
⑤ Draw out the left-side rod.

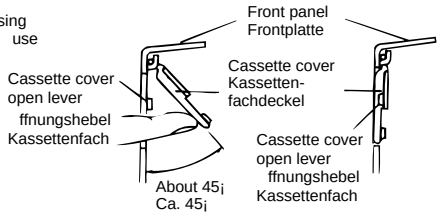
Kassettenfachabdeckung entfemen
① Die Kassettenfachabdeckung vollständig öffnen.
② Das Positionierungsteil In der Mitte entfernen.
③ Die Abdeckung nach rechts schieben.
④ Die Abdeckung etwas biegen.
⑤ Die Stange an der linken Seite herausziehen.

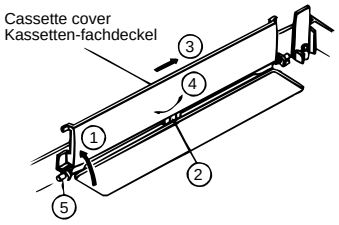
FRONT PANEL PARTS/FRONTTAFEL TEILE (FH310GM/SM)



PRECAUTION ON FRONT PANEL SET-UP
VORSICHTSMASSNAHMEN BEIM MONTIEREN DER FRONTPLATTE







Before attaching the front panel in position, make sure that the cassette cover open lever is in its right place (lower-most). If it is out of position, push it down with a finger.

Vor dem Anbringen der Fronplatte dafür sorgen, daß sich der Öffnungshebel für das Kassettenfach in der korrenkten Position (ganz unten) befindet.
Ist dies nicht der Fall, den Henel mit dem Finger herunterdrücken.

Keep the cassette cover about 45° open and make sure that the cassette cover open lever is between the front panel and the cassette cover. Now fix the front panel in place.

Den Kassettenfachdeckel auf ca. 45° offen halten und darauf achten, daß sich der Öffnungshebel zwischen der Frontplatte und dem Kassettenfachdeckel befindet. Frontplatte befestigen.

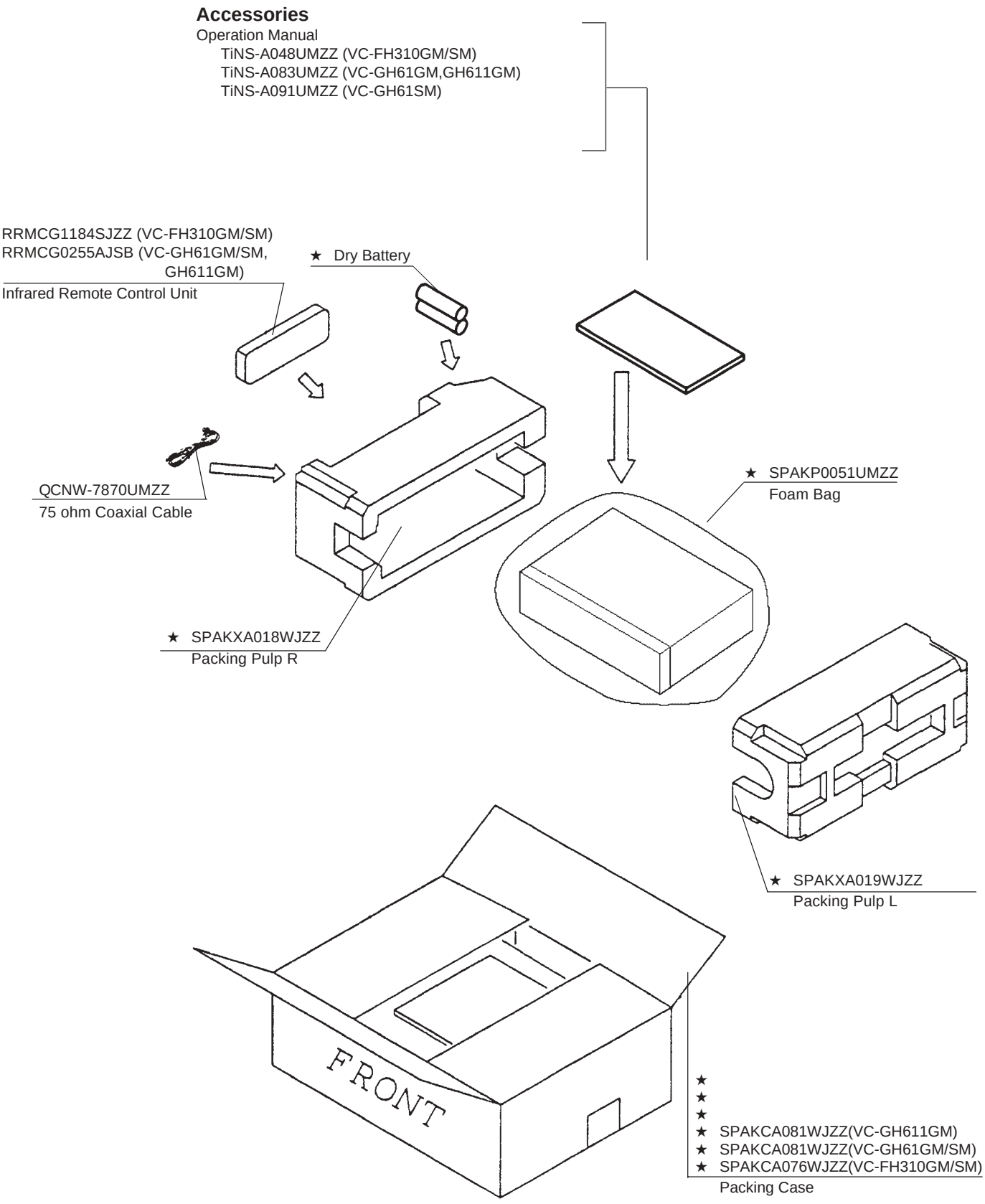
Do not mount the front panel with the cassette cover tilted too open. Otherwise the cassette cover might wrongly run on the cassette housing.

Die Frontplatte nicht montieren, wenn der Kassetten-fachdeckel zu weit geöffnet ist. Ansonsten kann der Kassettenfachdeckel durch Reibung am Kassettengehäuse beschädigt werden.

Removing the cassette compartment cover.
① Open the cassette compartment cover fully.
② Remove the center positioner.
③ Slide the cover to the right.
④ Slightly bend the cover.
⑤ Draw out the left-side rod.

Kassettenfachabdeckung entfemen
① Die Kassettenfachabdeckung vollständig öffnen.
② Das Positionierungsteil In der Mitte entfernen.
③ Die Abdeckung nach rechts schieben.
④ Die Abdeckung etwas biegen.
⑤ Die Stange an der linken Seite herausziehen.

12. PACKING OF THE SET



MARK ★ Not Replacement Item

SHARP

COPYRIGHT © 2002 BY SHARP CORPORATION

ALL RIGHTS RESERVED.

No part of this publication may be reproduced,
stored in a retrieval system, or transmitted in
any form or by any means, electronic, mechanical,
photocopying, recording, or otherwise, without
prior written permission of the publisher.

ⒹSMM Ⓟ SUKM TQ -S
Jun. 2002 Printed in Japan
In Japan gedruckt
SA. KY

SHARP CORPORATION
AV Systems Group
Quality & Reliability Control Center
Yaita, Tochigi 329-2193, Japan